UNITED STATES MARINE CORPS
3D MARINE AIRCRAFT WING
MARINE CORPS AIR STATION MIRAMAR
PO BOX 452038
SAN DIEGO CA 92145-2038

IN REPLY REFER TO:
5800
CG
FEB 22 2017

SECOND ENDORSEMENT on [redacted] ltr 5830 CI of 25 Jan 17

From: Commanding General
To: Headquarters Marine Corps, Manpower and Reserve Affairs (MMSR-6), 3280 Russell Road, Quantico VA 22134-5103

Subj: COMMAND INVESTIGATION OF THE FACTS AND CIRCUMSTANCES SURROUNDING THE CLASS "A" MISHAP OF VMFA-232 F/A-18C AIRCRAFT BUNO 165194 ON 28 JULY 2016

1. Readdressed and forwarded. The subject line has been changed for administrative accuracy.

2. On 28 July 2016, in the vicinity of Marine Corps Air Ground Combat Center (MACAGCC) Twentynine Palms, CA, an F/A-18C aircraft suffered a Class "A" mishap. The aircraft was destroyed and Major Richard S. Norton was killed. There were no other injuries to personnel or damage to government or civilian property.

3. The command investigation is in substantial compliance with the references and the findings of fact, opinions, and recommendations are approved as endorsed.

4. *I find that the death of Major Norton was in the line of duty and not due to his own misconduct. I direct that this determination be entered in his medical record. This investigation is closed.*

5. On behalf of the Marines and Sailors of 3d Marine Aircraft Wing, I extend our heartfelt condolences to the family and friends of Major Norton. He served his country honorably and is sorely missed by us all.

[redacted]
M. R. WISE

Copy To:
CO, MAG-11
CO, VMFA-232

UNITED STATES MARINE CORPS
MARINE AIRCRAFT GROUP 11
3D MARINE AIRCRAFT WING
MARINE CORPS AIR STATION MIRAMAR
PO BOX 452039
SAN DIEGO, CA 92145-2039

5800
CI
FEB 10 2017

FIRST ENDORSEMENT on [redacted] ltr 5830 CI dtd 25 Jan 2017

From: Commanding Officer, Marine Aircraft Group 11
To: Commanding General, 3d Marine Aircraft Wing
Via: Staff Judge Advocate, 3d Marine Aircraft Wing

Subj: COMMAND INVESTIGATION OF THE FACTS AND CIRCUMSTANCES SURROUNDING THE CLASS "A" MISHAP OF VMFA-232 F/A-18C AIRCRAFT BUNO 165194 28 JULY 2016

1. Readdressed and Forwarded.

2. I have reviewed the Investigating Officer's report and enclosures. I concur with the findings of the fact, recommendations, and that Major Norton's death occurred while in the line of duty, not due to any misconduct.

3. This investigation is late due to the extensive time required to receive the results of multiple engineering investigations and then the additional time required to complete the detailed analyses of events that transpired during this tragic mishap. The investigating officer's diligence and tireless pursuit for complete understanding of the facts, and their cause and effect relationship must be commended. Major Norton was a gifted Aviator and Marine Officer, his family and the Hornet community deserved nothing less.

4. Marines train for combat in order to be prepared to do our Nation's bidding. To fight and win in combat, Marines must train in every clime and place both day and night. For F/A-18 pilots, sometimes that training comes with inherent risk and conducting night strafe attacks is one of the most challenging and demanding skill sets our aircrew must undertake. On the night of 28 July, 2016 Major Norton was training to protect and serve his fellow Marines and our great Nation, and he gave the ultimate sacrifice in doing so. While we may never fully know what caused this mishap, we must ensure we study, discuss, and learn from the many lessons presented in this investigation to better inform our decision making while preventing similar mishaps from ever happening in the future.

5. Having had the honor of serving alongside Major Norton, I saw first-hand his professional acumen. I can tell you he was a quiet professional whose strength of character, gifted ability, and natural leadership epitomized what we all aspire to be as Marine Officers and Aviators. This is not shallow praise; but a testament to the man, his family, and his friends that enabled him to have such a positive influence on those around him. I have no doubt his legacy of tactical expertise, dedication, humor, humility, and friendship will be felt in perpetuity. He certainly will be missed by all who knew him.

6. I find no further investigation necessary and consider this case closed.

7. The point of contact for this matter is the Executive Officer, [redacted] who can be reached at [redacted].

[redacted]
W. H. SWAN

Copy To:
CO, VMFA-232

UNITED STATES MARINE CORPS
MARINE AIRCRAFT GROUP 11
3D MARINE AIRCRAFT WING
MARINE CORPS AIR STATION MIRAMAR
PO BOX 452039
SAN DIEGO, CA 92145-2039

IN REPLY REFER TO:
5830
CI
25 Jan 17

From: [redacted] USMC
To: Commanding Officer, Marine Aircraft Group 11

Subj: COMMAND INVESTIGATION OF THE FACTS AND CIRCUMSTANCES SURROUNDING THE CLASS "A" MISHAP OF VMFA-232 F/A-18C AIRCRAFT BUNO 165194 ON 28 JULY 2016

Ref: (a) JAGINST 5800.7F (JAGAMAN), Chapter II
(b) Title 10, U.S. Code, Subtitle A, Part IV, Ch 134 Subchapter II, Section 2255 (Aircraft Accident Investigation Boards)
(c) A1-F18AC0NFM-000 NATOPS flight manual Navy model F/A-18A/B/C/D aircraft (15 July 2015)
(d) Operation of the F/A-18 Avionic subsystem for the F/A-18A+/C/D aircraft with 25X system configuration set (25X SCS GREYBOOK Final)
(e) OPNAVINST 3710.7U (General Flight and Operating Instructions), 23 Nov 09
(f) MAWTS-1 Target Attack Planning Guide
(g) 2016 Marine Aviation Campaign Plan

Encl: (1) Investigating Officer Appointment Letter
(2) Extensions of Appointing Order from CO, MAG-11
(3) HMLA-169 pilot statements
(4) Personal Casualty Report in the case of Major Sterling Norton
(5) Flight schedule
(6) ODO notes
(7) ODO Dash 1 (Current and forecasted weather)
(8) ORM worksheet
(9) Aeromechanics Safety Investigation Support Team (ASIST) report
(10) Compact Disk with HMLA-169 "Viper" FLIR video
(11) Aircraft debris field using Kill Switch
(12) Autopsy report (ME16-0170 Maj Richard Sterling Norton)
(13) Experts from Major Norton's Basic Information Record
(14) Copy of Major Norton's medical up-chit
(15) Excerpts from OPNAV 3710.6U
(16) VMFA-232 Flight Surgeon E-mail to the IO
(17) Excerpts from Major Norton's NATOPS jacket
(18) MASHARP Hot Board
(19) Excerpts from Marine Corps Aviation Campaign Plan
(20) Major Norton's MSHARP flight records
(21) Excerpts from Aviation Program Manual
(22) Excerpts from F/A-18 Training and Readiness manual (NAVMC 3500.50C, Chapter 2) dated 5 April 2016.
(23) Wingman's kneeboard cards
(24) Red Devil SOP
(25) MAWTS-1 Target Attack Planning Guide – (Version XIII Mar 13)
(26) Excerpts from Greybook - (F/A-18-25X Greybook-U-796, 25X Greybook

final, June 2014)
(27) Excerpts from NATOPS flight manual - (A1-F18AC-NFM-000, F/A-18A/B/C/D Aircraft, 1 Dec 2012)
(28) MIST Infield Report; Mishap occurred on 28 Jul 2016, Aircraft F/A-18C, BUNO 165194

Preliminary Statement

1. The purpose of this report is to provide an analysis of the investigation into the circumstances surrounding the crash of Marine Fighter Attack Squadron Two-Thirty-Two (VMFA-232) F/A-18C aircraft bureau number (Buno) 165194 on the evening of 28 July 2016 at Marine Corps Air Ground Combat Center (MCAGCC) Twentynine Palms, Ca. The crash resulted in the death of the pilot and the complete destruction of the aircraft.

2. All reasonably available evidence was collected and each directive of the Convening Order was met. Enclosures (1) thru (29) contain factual evidence pertinent to this investigation.

3. Legal assistance was provided by the 3d MAW Deputy Staff Judge Advocate, [redacted].

4. Eyewitness and members of HMLA-169 were interviewed in person and by telephone at Camp Wilson in MCAGCC Twentynine Palms, Ca.

5. Social security numbers were not collected from interviews sources. Prior to questioning witnesses, the IO advised them of the purpose of the JAGMAN investigation. All personnel from the affected command and witnesses cooperated fully with this investigation.

6. Enclosures contain material pertinent to this investigation. I certify that all enclosures are original true copies or true and accurate copies of the original documents they represent.

7. In compliance with Ref (a), the IO, [redacted], USMC is a designated Naval Aviator, is not from the mishap unit or a unit subordinate to the mishap unit, and throughout the investigation consulted with multiple members of the armed forces who possessed knowledge and expertise relevant to the aviation mishap investigation.

8. Each extension to this investigation was granted by the convening authority while the IO awaited Engineering Investigation (EI) results. In each case, the EI results were instrumental in determining the causal factors of the mishap.

9. All times in this report are local Pacific Standard Time (PST) and come from the Buno 165194's recovered Digital Flight Incident Recorder System unless otherwise annotated.

10. Original items of evidence are in the custody of the VMFA-232 Aviation Mishap Board (AMB).

Subj: COMMAND INVESTIGATION OF THE FACTS AND CIRCUMSTANCES SURROUNDING THE CLASS "A" MISHAP OF VMFA-232 F/A-18C AIRCRAFT BUNO 165194 ON 28 JULY 2016

11. This investigation complies with the U.S. Code Title 10, Subtitle A, Part IV, Chapter 134, subchapter II, 2255 (Aircraft Accident Investigation Boards). The Investigating Officer (IO) [redacted] is a designated Naval Aviator with over 20 years of USMC aviation experience in numerous military aircraft (CH-46E, TH-57, MV-22B) and has participated in multiple Aviation Mishap Boards. Assistance for this investigation was provided by numerous Subject Matter Experts (SMEs) from within MAG-11.

Findings of Fact

1. At approximately 2232, on the evening of 28 July 2016, an F/A-18C attached to VMFA-232(AW) impacted the ground in the Marine Corps Air Ground Combat Center (MCAGCC) Twenty-nine Palms, California which resulted in the complete destruction of the aircraft. [Encl (4)]

2. Major Sterling Norton, USMC, was the pilot in command and was killed as a result of this mishap. [Encl (5)]

3. Maj Norton was scheduled to lead a flight of two in support of India Company in the 29 Palms Range Complex. [Encl (6)]

4. Maj Norton's wingman did not fly due to an aircraft maintenance issue that precluded executing and completing the scheduled flight. [Encl (7)]

5. Within the 29 Palms range complex, the weather was forecasted to be skies clear with 7 statute miles of visibility and surface winds from 140 at 10kts. There were no thunderstorms, turbulence, icing or precipitation forecasted during the scheduled event. [Encl (8)]

6. The forecasted weather supported the mission. [Encl (7)]

7. Actual weather at the time of the event:
    a. Winds 8kts or less from 12,000' to the surface.
    b. Tempo winds from 240 at 14kts gusting to 21kts
    c. Skies Clear
[Encl (7)]

8. Actual weather supported the mission. [Encl (7)]

42. Maj Norton was scheduled to carry 250rds of PGU-28 SAPHEI 20mm ammunition (semi-armor piercing high explosive incendiary cartridge), 1x GBU-16 (guided bomb unit -16), 2x BDU-45 (full scale practice bomb). [Encl(24)]

9. There were no medium or high risks associated with the scheduled event or personally identified by the pilot. (Encl (9)]

10. The mishap aircraft departed MCAS Miramar under the call-sign Devil 43. [Encl (7)]

11. In addition to the mishap aircraft, two AH-1Z Cobra helicopters (Viper 67 and 68) provided additional aviation support of V3/7. [Encl (4]

12. Using an IR diode, an AH-1Z designated notional targets for Devil 43 on three separate diving attacks (bomb delivery, strafe and strafe). [Encl (4)]

13. Aproximately 90 seconds after initiating the third dive, the mishap aircraft impacted the ground. [Encl (10)]

14. The debris field for Maj Norton's mishap was 199 meters wide and 1,586 meters long with very small pieces. This is indicative of a high speed shallow angle of attack mishap. [Encl (11, 12)]

15. The cause of death of Maj Norton was "Multiple Injuries due to an aircraft mishap". The manner of death was "accident". [Encl (13)]

Pilot

16. Maj Norton was on active duty in the Regular Marine Corps and accepted his commission on 25 Mar 2005. [Encl (14)]

17. Maj Norton was promoted to his current rank of Major on the 1st of July 2015. [Encl (15)]

18. Maj Norton was assigned to the flight schedule without a current medical up-chit. [Encl (15)]

19. Maj Norton's flight physical expired on the 30 of June 2016. [Encl (15)]

20. Flight physicals are required annually NET the first day of the month preceding the birth month and NLT than the last day of the birth month. [Encl (16)]

21. Maj Norton received no recent off base medical treatment and had no appointments scheduled. [Encl (17)]

22. Maj Norton received no recent on base treatment and had no appointments scheduled. [Encl (17)]

23. Maj Norton had no known medical complaints. [Encl (17)]

24. Maj Norton had no known medical issues or illnesses that would otherwise disqualify him for duties involving flight operations. [Encl (17)]

25. Maj Norton was current and had completed the Naval Aviation Survival Training Program (NASTP) refresher course in 2014. [Encl (18)]

26. Maj Norton was current and had completed the annual requirements as laid forth in OPNAV 3710.7U: Aeromedical aspects of an ejection, emergency egress, sensory problems, LASER and LASER eye protection, hypoxia awareness training and G-tolerance improvement procedures. [Encl (18)]

27. Maj Norton was Naval Aviation Training and Operating Procedures (NATOPs) current and qualified in model. [Encl (18)]

28. Maj Norton was NATOPS Instrument current and qualified with an expiration date of 30 Jun 2017. [Encl (18)]

29. On the 27th of July (day the schedule was signed), Maj Norton was an F/A-18 Marine Fighter Attack Pilot with 1157.1 total hours, 885.1 F/A-18A/C/D hours, 3.1 hours F/A-18B. [Encl (19)]

30. On the 27th of July (day the schedule was signed), Maj Norton had flown:
a. 90 days preceding 40.5hrs
b. 60 days preceding 28.3hrs
c. 30 days preceding 11.4hrs
[Encl (19)]

31. On the 27th of July (day the schedule was signed), Maj Norton had flown 21.8 hours of night time in the preceding six months. [Encl (19)]

32. Per the HQ Marine Corps Aviation Campaign Plan, each F/A-18 pilot should fly 15.7hrs per month, 31.4hrs every 60 days and 47.1hrs every 90 days. [Encl(20)]

33. Maj Norton's last night flight was on the 18th of July. [Encl (21)]

34. Maj Norton was a Strike Fighter Tactics Instructor (TOPGUN) and was designated an F/A-18 Weapons and Tactics Instructor (WTI) on the 25th of April 2016. [Encl (18))

35. Six months prior to the mishap flight, Maj Norton had logged a night systems Strafe (Gun Run) flight approximately seven times. [Encl (21)]

36. Maj Norton had last flown a Low Light Level (LLL) night gun strafe 13 Jul 2016: T&R coded 2304. [Encl (21)]

37. Per the Aviation Program Manual:
1. Currency is a control measure used to provide an additional margin of safety based on exposure frequency to a particular skill. It is a measure of time since the last event demanding that specific skill. Loss of currency does not affect a loss of proficiency.
2. Proficiency is a measure of achievement of a specific skill. Proficiency periods establish the maximum time between demonstration of those particular skills.
[Encl (22)]

38. Maj Norton was both current and proficient for the flight (T&R coded 3103, 3104, 3106, 2202) he was scheduled for on the 28th of July.
1. F/A-18 T&R code 3103 - Day general purpose Close Air Support using Type I or II terminal control. Proficiency refly factor of 365 days.
2. F/A-18 T&R code 3104 - Day precision guided munition Close Air Support using Type II and III terminal attack control. Proficiency refly factor of 180 days.
3. F/A-18 T&R code 3106 - Utilizing Night Systems, conduct Urban Close Air Support. Proficiency refly factor of 365 days.
4. F/A-18 T&R code 2202 - Night aerial refueling
[Encl (23)]

39. Within the previous 6 months, Maj Norton had flown a 3103, 3104, 3106, and 2202:

	3103	3104	3106	2202
29 Jan	x			
1 Feb			x	
4 Feb			x	
24 Feb				x
30 Mar	x	x		
1 Apr			x	
2 Apr			x	
6 Apr				x
13 Jul	x	x		
25 Jul	x			
26 Jul	x			
27 Jul	x	x		

[Encl (23)]

40. Maj Norton is a designated section leader. [Encl (18)]

Guidance for A/G deliveries

41. VMFA-232 SOP states that the MAWTS-1 criteria will be used for all Air-to-Ground (A/G) deliveries. [Encl (25)]

42. Maj Norton planned to use the MAWTS-1 25° PGU-28 Z-diagram as outlined in the MAWTS-1 target attack planning guide. [Encl (24)]

43. Per the Target Attack Planning guide:

a. Velocity conversions: 480 knots = 811.2 ft/sec

b. Assumptions & Notes

1. Safe Escape (S.E.) is planned to 5G and 15 degrees nose high

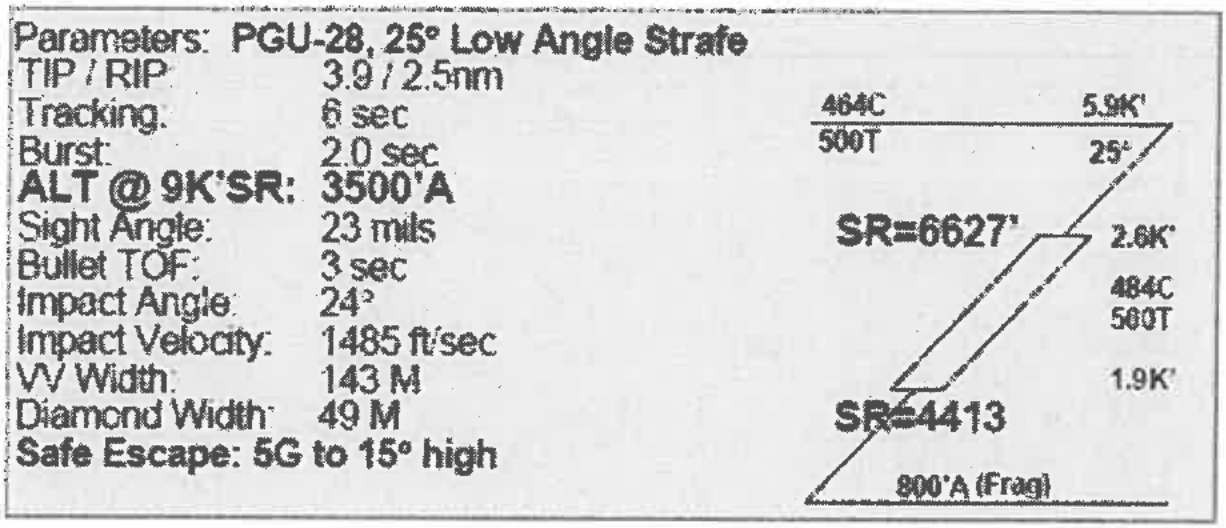
2. MAWTS-1 recommends cross-checking slant range and altitude through an altitude to slant range correlation. A good technique to check altitude and slant range is at the 9000' slant range mark (this allows the pilot time to transition their scan to pipper and slant range).

3. MAWTS-1 recommends utilizing a Z-diagram every time you employ in a dive delivery. New PGU-28 data allows aircrew to minimize slant range to the target, and thus get closer to the ground. Whether performing a sensor acquisition of the target to a sensor delivery utilizing the TPOD, or a visual acquisition of the target to a visual delivery based on sight picture, a planned Z-diagram will keep aircrew safe.

i. If steep and fast on any Z-diagram, you must cease fire early (500' early on cease fire slant range) to prevent min altitude violation.

ii. Per the air to ground training rules, reference +/- 5 degrees for abort parameters when employing the gun.

4. One Z-diagram will not be the solution for every target and situation. For training and habit pattern development, MAWTS-1 recommends a 25° strafe Z for the best compromise between beaten zone and RADALT limitations.



[Encl (26)]

Terrain Avoidance Systems.

44. Per the wingman's kneeboard card, the Primary Rad Alt warning "HardRad" was to be set at 800' AGL. [Encl (24)].

45. In accordance with the MAWTS-1 standard, Maj Norton intended to set his "HardRadAlt" at 800'. [Encl (24)]

46. When first activated in flight, the Primary Radar Low Altitude Warning is continuously repeated until reset or disabled.[i] [Encl (28)]

47. Maj Norton's HarRadAlt was set to 200'. [Encl (10)]

48. The secondary RadAlt low altitude warning is controlled by the mission computer, based on altitude information provided by the RadAlt. [Encl (27)]

49. The secondary radar low altitude warning provides a single voice alert warning. [Encl (28)]

50. In accordance with the MAWTS-1 standard, Maj Norton intended to set his "SoftRadAlt" at 1,900' AGL. [Encl (24)]

51. Maj Norton's SoftRadAlt was set to 1,900' AGL. [Encl (10)]

52. Once a voice alert has been activated, it cannot be interrupted by a higher priority voice alert. All voice alerts play until completed. [Encl (27)]

53. Terrain Avoidance Warning System (TAWS) is the follow-on Controlled Flight into Terrain (CFIT) protection system, which provides greater protection than the GPWS using forward predictive capability to protect against rising terrain. TAWS is the primary CFIT protection for all Tactical

Aircraft Moving Map Capability (TAMMAC) equipped aircraft and resides in the digital map computer. When a Digital Map Computer (DMC) is not installed in the aircraft, is not operational, or in Built in Test (BIT); TAWS is unavailable and protection from CFIT events is provided by the GPWS. [Encl (27)]

54. If a DMC failure occurs, it should be assumed that TAWS has also failed and protection is provided by Ground Proximity Warning System (GPWS); therefore, forward looking protection is not provided. There is no top level indication that TAWS has failed and has reverted to GPWS. [Encl (27)]

55. Altitude Lost During Recovery (ALDR) warning provides protection during most enroute and tactical situations (weapons delivery and low level flight). The ALDR warning provides protection against diving flight into terrain and potentially unsafe maneuvering flight conditions. The ALDR calculations included the loss of altitude due to persistency timers, aircrew reaction, roll to wings level, G-onset, steady state dive recovery, variable safety buffer and clearance altitude. [Encl (27)]

56. GPWS provides CFIT protection by continuously calculating, current flight conditions, the altitude required to recover above the terrain. A warning is issued when the altitude required for recovery, plus a variable safety buffer and added terrain clearance altitude, is greater than the current altitude above terrain. GPWS calculates the altitude required for a recovery from a pilot response time, a roll to wings level and a dive recovery. The allowable pilot response time varies, depending on flight conditions, and is at a minimum (0.5 seconds) in the GPWS LAT envelope (+/- 30° AOB, 0-30° dive, 400-525kts). [Encl (28)]

DFIRS

57. The Deployable Flight Incident Recorder Set (DFIRS) was recovered and approximately 30 min of data was recovered and recreated by the Aeromechanics Safety Investigation Support Team (ASIST). [Encl (10)]

58. DFIRS (MU data) indicates when an Aural Alert has been requested (set) and when the alert has been cleared (reset). However, it has no data indicating if a visual GPWS recovery arrow has actually been displayed. [Encl (10)]

DFIRS Aircraft Data

59. No Flight Control System (FCS) related Advisories, Cautions or Warnings were observed on the DFIRS data. [Encl (10)]

60. Flight control surfaces were responding appropriately to pilot inputs and the aircraft response was following the pilot's command. [Encl (10)]

61. The aircraft was operating within normal parameters during the mishap flight. [Encl (10)]

62. The pilot was in control of the aircraft until impact. [Encl (10)]

63. Maintenance Status Panel (MSP) Codes exist to direct maintenance action for avionics subsystems. Most MSP Codes are a result of BIT. [27]

64. Unless specifically stated in NATOPS, BLIN or MSP codes shall not be used for in-flight decision making. [Encl (28)]

65. MSP codes present on the DFIRS prior to the 30 minute record cycle:
605 - Strain Gage #7 Fail
112 - DMC Fail
500 - R Diverter Valve Fail
11C - RWR/ALE 47 MUX Term Fail
047 - Radar Waveguide Pressure Low
109 - RWR Integrated Antenna Fail
[Encl (10)]

66. MSP codes that posted within the 30 minutes preceding the mishap:
450 - R Turbine Boost Pump Fail
[Encl (10)]

67. Engine performance data was analyzed and found normal response to throttle commands. [Encl (10)]

68. No Bit Logic Inspect (BLIN) codes had been set during the flight. [Encl (10)]

Dive #1 BDU drop

69. 22:21.49, Dive #1 begins. [Encl (10)]

70. 22:22:05, crossing 12,000' MSL Maj Norton receives a voice aural, "Altitude, Altitude". [Encl (10)]

71. 22:22.23, MK-82 count (bombs dropped) goes to zero. [Encl (10)]

72. 22:22.23, Lowest point on Dive 1 is recorded at 6,870 MSL (4,768 AGL) with a peak airspeed of 468kts. [Encl (10)]

73. 22:22.35 (FLIR time), 1st BDU-45 hits the target and the second misses 20 meters south. [Encl (4, 11)]

Dive #2 Strafe 50 meters South of BDU target

74. ~22:23:46 (FLIR time), Viper asks Devil if he is Low Level approved. [Encl (4, 11)]

75. ~22:24.50 (FLIR time), Devil replies affirm. (4, 11)]

76. 22:27:38, crossing 12,000' MSL Maj Norton receives an aural voice, "Altitude, Altitude". [Encl (10)]

77. 22:28:16, Dive two (Strafe) starts at the starting pitch of 15° nose down bunt maneuver from 10,600' MSL & 324kts - on a position 50 meters south of the BDU drop (Dive #1). [Encl (4, 10)]

78. Maj Norton self-lazed for this event. [Encl (4)]

79. At 22:28:44, the pitch angle was steepened to 20° nose down. With part throttles, the aircraft accelerated to ~460kts. [Encl (10)]

80. At ~22:28:51 and 2,700' AGL, the pilot pulled the trigger. [Encl (10)]

81. The pickle (trigger) was released at 22:28:53 when the aircraft altitude was 2,195' AGL. [Encl (10)]

82. 22:28:54, crossing 1,900' AGL Maj Norton receives a voice aural cue, "Altitude, Altitude". [Encl (10)]

83. 22:28.56, lowest point on Dive 2 is recorded at 3,500'MSL (1,280' AGL). [Encl(10)]

Dive #3 Strafe 50 meters North of BDU target

84. Devil 43 tells Viper that he only has enough gun and gas for one more attack. [Encl (4)]

85. AH-1Z sparkle is known to be weak. [Multiple MAG-11 pilot interviews]

86. ~22:31:28 (FLIR time) Devil (Maj Norton) is asked by Viper if he is contact sparkle. [Encl (11)]

87. 22:31:32 Dive #3 starts: Bunt maneuver from 10,070' MSL & 394kts. [Encl (10)]

88. The pilot captured 15° left bank and then leveled to no AOB with 15° nose down. Additional bank corrections were made as the aircraft accelerated to 415kts at 8,800'MSL with part power [Encl (10)]

89. ~22:31:37/38 (FLIR time), Devil replies affirm. [Encl (11)]

90. ~22:31:49 (FLIR time), Viper directs Devil to hit my sparkle. [Encl (11)]

91. Devil matches the Viper sparkle. [Encl (4)]

92. 22:32:00.5, the system request a SoftRadAlt voice aural alert of "Altitude, Altitude" crossing 1,900' AGL. [Encl (10)]

93. 22:32:00.8, the approximate time Maj Norton would have begun to hear the voice aural cue "Altitude, Altitude". [Encl (10)]

94. 22:32:00.9, the system request a GPWS Aural alert: "Pull-up, Pull-up".[ii] GPWS arrow should have been displayed. [Encl (10)][iii]

95. Maj Norton does not react to the GPWS arrow that should have been displayed. [Encl (10)]

96. 22:32:01.4, the approximate time of trigger depression at 1,500' AGL. [Encl (10)]

97. At the time of trigger depression, the aircraft was 3,600'MSL (1,500'AGL), 26° nose low and 480kts. [Encl (10)]

98. The HUD will "wash-out" and the pilot's night vision goggles will degain significantly when the trigger is depressed and rounds are fired down range. [Multiple pilot interviews]

99. Maj Norton increases his dive angle to 27° causing the GPWS to recalculate time to impact. [Encl (10)]

100. 22:32:01.6, GPWS alert cleared (reset) before it is aurally annunciated: reasons unknown. If present, the GPWS arrow would have cleared with the system reset. [Encl (10)]

101. 22:32:02.6, the system completes the SoftRadAlt voice aural alert of "Altitude, Altitude". [Encl (10)]

102. Maj Norton does not react to the SoftRadAlt voice aural alert of "Altitude, Altitude". [Encl (10)]

103. 22:32:02.7, the GPWS Voice Aural should have been annunciated had it not reset itself. [Encl(10)]

104. 22:32:03.1, (3,100'MSL, 490kts, 1.6G, 24° nose low, 800'AGL) the system request a GPWS Aural voice alert: "Pull-up,Pull-up". GPWS arrow should have been displayed. [Encl (10)]

105. 22:32:03.4, approximate time of "Pull-up, Pull-Up" annunciated voice aural. [Encl (10)][iv]

106. 22:32:04, (2,610'MSL & 492kts) Pilot applies aft stick of 4.5 inches (full aft). [Encl (10)]

107. Maj Norton's plane (based on weight) was limited to 6.4G. [Encl (10)][v]

108. Activating the Paddle switch would have increased his G-limit to 8.5G (33% increase). [Encl (10)][vi]

109. Maj Norton does not activate the paddle switch. [Encl (10)]

110. 22:32:04.5, (200' AGL), the system request a "HardRadAlt" aural alert of "Whoop, Whoop". [Encl (10)]

111. 22:32:04.8, likely initial impact with the ground. [Encl (10)]

112. 22:32:05, (2,360'MSL, 484kts) last data point. [Encl (10)]

113. The ejection seat safety pin was not installed and the seat was armed prior to the mishap. This is the normal configuration for flight. [Encl (29)]

114. Ejection was initiated by ground impact. Ejection was not initiated by the aircrew. [Encl (29)]

115. If the ejection system would have been initiated by the aircrew all the associated systems and subsystems would have functioned as designed. [Encl (29)]

Dive #2 & Dive #3 comparison:

116. Dive #2 started at ~320kts/10,600'MSL. [Encl (10)]

117. Dive #3 started at ~395kts/10,070'MSL. [Encl (10)]

118. At 5,000'AGL the pitch attitude for both dives was ~15-20° while the calibrated airspeed of Dive #3 was ~40kts higher. [Encl (10)]

119. Dive #3 trigger release was estimated to occur ~4 seconds later and ~1,200'AGL lower than Dive #2 [Encl (10)]

120. Dive #3 recovery initiation occurred ~1,100' lower than Dive #2. [Encl (10)]

Pilot Simulations

121. A model was run with pilot inputs initiated at 22:32:01 (1,600' AGL & the time the GPWS arrow should have appeared) the aircraft would have recovered at ~900'AGL. [Encl (10)]

122. A model was run with pilot inputs initiated at 22:32:03.4 (approximate time of aural "Pull-up, Pull-up".

a. No delay in control application and no paddles resulted in a recovery altitude of ~150' to ~200'AGL

b. .5 second delay in control application and no paddles did not have altitude to recover.

c. It was noted during simulation that when a pilot was expecting the GPWS alert the average pilot reaction time was recorded to be ~.43 seconds. Not expectant, Maj Norton's reaction time was .6 seconds. [Encl (10)]

123. DFIRS data indicates the GPWS voice alert "Pull-up, Pull-up" was not annunciated aurally at the requested time. During the request a different voice alert "Altitude, Altitude" was already active and playing. The GPWS recovery arrow should have displayed on the HUD at time 22:32:00.9 when the GPWS voice alert was requested. Once the "Altitude, Altitude" aural alert was completed, there was an unexpected delay before the annunciation of the voice aural alert "Pull-up, Pull-up". It was not re-requested until 22:32:03.1 or ~0.5 seconds after the conclusion of the "Altitude, Altitude". Therefore, the voice aural of "Pull-up, Pull-up" did not occur until 22:32:03.4. [Encl (10)]

124. Analysis shows the GPWS should have requested a "Pull-up, Pull-up" annunciation at 22:32:01.1 which would have occurred at 1,600' AGL and 479kts with 25° nose low. This closely resembles the actual GPWS warning being set at 22:32:00.9. Analysis was unable to reproduce the clearing and resetting of the GPWS as seen in the DFIRS data at 22:32:01.6 and 22:32:02.0 (although the clearing of the warning was also seen in simulation). Just after the

warning was initiated, GPWS reduced the predicted pilot response time which also reduces the warning altitude and, most likely, cleared the warning. As flight conditions deteriorated (increase in dive angle) the warning altitude, caused the GPWS warning to again be set. [Encl (10)]

125. Had the DMC not failed, TAWS would have been available. Since TAWS does not calculate pilot response time there would have been no threat of the TAWS warning being cleared (reset). [Encl (10)]

Opinions

1. Flight Physical paperwork withstanding, Maj Norton was qualified, current and proficient for the scheduled T&R event. [FFs: 19-24, 25-28, 28-40]

2. Up until the impact, the aircraft was performing as expected with no degradations which would have precluded mission completion. [FFs: 62-70]

3. Maj Norton knew how to apply the MAWTS-1 Z-diagram. In order to graduate the most recent WTI class, he would have had to establish his understanding and ability to apply Z-diagram principles. Additionally, he very clearly demonstrated he could apply the principles of the Z-diagram during his near text book example on the previous gun run - Dive #2. {FFS: 34-36, 43-45, 46, 51, 52, 76-85}

4. Maj Norton announced over the radio that he had rounds and fuel remaining for one more run. It has been postulated (by other F/A-18 pilots) that as he made this announcement, he had already begun planning how he intended to complete this dive and then return to Miramar with the gas remaining. Additionally, he would have also been calculating how long he would need to pull the trigger to expend his remaining rounds. These mental calculations, while not causal, became the first of several distractors during Dive #3 that led to Maj Norton being cognitively saturated. [FFs: 48, 86-87, 89, 93-95, 97-99, 103]

5. Maj Norton set his SoftRad in accordance with the MAWTS-1 standard of 1,900'AGL. However, due to suspected target fixation - intense concentration - Maj Norton missed the annunciated verbal aural of "Altitude, Altitude". [FFs: 51-52, 90-91, 98-99, 103]

6. The GPWS set at 1,600' but, reasons unknown, reset before becoming annunciated as a verbal aural. It is believed this is due to a system recalculation of pilot response time to avoid CFIT after increasing his dive angle to 27° nose low. [FFs: 56-57, 96-97, 101-102, 105-107]

7. Had the DMC not failed, TAWS would have been available. Since TAWS does not calculate pilot response time there would have been no threat of the TAWS warning being cleared (reset). [FFs: 54-55, 120-124]

8. Maj Norton pulls the trigger four seconds later and 1,100' lower than he did on Dive #2. This trigger pull likely "washed out" the HUD symbology and degained his goggles enough for him to miss the GPWS corrective arrow which would have appeared on his HUD near simultaneous with the trigger pull. This trigger pull occurs 400' below the altitude he should have initiated his Safe Escape maneuver. [FFs: 82-83, 98-100, 118]

9. GPWS requests an annunciated aural passing 800' AGL. Maj Norton receives an annunciated verbal aural of "pull-up, pull-up" .3 seconds later at 490kts and 24° nose low. Six-tenths of a second after hearing the annunciated verbal aural, Maj Norton quickly applies 4.5" aft stick (maximum stick deflection) Maj Norton does not activate the G-Limiter override which would have given him a G-limit increase of 33% or an increase from 6.4G to 8.5G. [FFs: 106-111]

Conclusion

1. Strafes have multiple checks that, when done correctly, will help prevent aircrew from conducting a CFIT type event. The primary CFIT check is procedural and lies with the pilot. The MAWTS-1 A/G delivery guide lays out very clear procedural guidelines that, if followed, will keep the pilot from impacting the deck. For example, 480kts +/- 30 kts checked at a specific altitude, 25 degree dive angle measured by cross checking altitude (+/- 400') with slant range (9000'), setting the Hard RadAlt (Whoop, Whoop) to 800' and setting the Soft RadAlt (Altitude, Altitude) to 1900'. Secondary CFIT checks are inherent to the F/A-18 and imbedded within the plane's systems. For example, TAWS and GPWS (TAWS back-up) provide the pilot with visual cues (break X and recovery arrow) and also provide an aural cue (Pull-up, Pull-up) telling the pilot if a CFIT event is imminent.

2. Maj Norton entered Dive #3 lower and faster than Dive #2. He then pulled the trigger 1100' lower than the previous dive and 400' lower than his Safe Escape altitude. Near concurrent with this trigger pull, he received a recovery arrow and an aural "Altitude, Altitude". Due to target fixation, Maj Norton misses both of these primary (pilot controlled) procedural checkpoints. He also misses the first of two secondary (system controlled) checkpoints: the recovery arrow displayed on the HUD.

3. The final secondary systems-controlled checkpoint to avoid CFIT lies within the TAWS and when TAWS is not available the system automatically reverts to the GPWS. TAWS and GPWS are inherent within the F/A-18. TAWS uses Digital Map data and algorithms to help prevent pilots from executing CFIT. TAWS does not continually recalculate pilot response time due to pilot flight control adjustments. Once a TAWS verbal alert is set, it will play regardless of how the pilot adjusts his flight controls. However, with a DMC failure TAWS was not available and the system reverted to GPWS. GPWS continually recalculates pilot response with each change in pilot flight control inputs. During dive #3, a GPWS warning was set at ~1600 feet AGL. This GPWS alert was placed in a cue due to another aural alert (SoftRad) being played at that time. While in the cue awaiting to be played, the GPWS alert reset itself before aurally annunciating. Engineers believe the GPWS reset itself prior to the annunciation due to recalculating the pilot reaction time. This recalculation was due to Maj Norton increasing his dive angle to 27° nose down. This GPWS recalculation added 1.1 seconds to the system annunciation of "Pull-up, Pull-up". In a dive that already contained procedural error, this additional 1.1 seconds did not give Maj Norton the time or altitude necessary to recover the plane without activating the paddle switch once the warning was annunciated.

Recommendations

1. Line of Duty Determination. There is no misconduct by the pilot that contributed to this mishap. I recommend Maj Sterling Norton be found in the line of duty and not due to misconduct.

2. MAWTS-1 re-evaluate their Z-diagram floor (HardRad setting) altitude of 800'.

a. DMC failures will not be noticed by the pilot and will cause the TAWS to revert to GPWS.

1. GPWS does not have a look forward capability
2. GPWS offers limited protection with a ground slope of more than 2°.
3. GPWS recalculates pilot reaction time and TAWS does not.

b. Once a voice alert has been activated it can't be interrupted by a higher priority voice alert.

c. Once recognized by the system, it takes -.3 seconds before the system aurally alerts the pilot. Additionally, average reaction time of an expectant pilot to the "Pull-up, Pull-up" voice alert is .43 seconds. Maj Norton, not expectant, reacted in .6 seconds.

d. -0.9 seconds after the system identifies the aircraft is low the aircraft will be passing through -400 AGL. Without activating the paddle switch, it is unlikely a pilot could recover the aircraft from 400' AGL on a 480kt, 25 degree dive angle.

d. Given pilot reaction time and system limitations,6gt an 800' HardRad setting is too low to be an effective safety warning.

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[i] The Primary Radar low Altitude Warning can be disabled by pressing the: RALT button on the UFC or by commanding the UFC to another mode. [Encl (NATOPS)]

[ii] GPWS is a safety backup system that warns the aircrew of impending controlled flight into terrain (CFIT). Pilot response time to a valid warning should be instinctive and immediate, using the maximum capabilities of the aircraft to recover until safely clear of the terrain. [Encl (NATOPS)]

[iii] In addition to the GPWS voice warning, a visual recovery arrow is provided in the center of the HUD. The recovery arrow indicates the direction of the horizon. The visual cue is displayed whenever a CFIT is present and is removed when the CFIT condition no longer exists. [Encl (greybook)]

[iv] GPWS voice warnings include: Roll-left_Roll-Left, Roll-Right_Roll-Right, Pull-Up_Pull-Up, Power_Power, Check Gear [Encl (greybook)]

[v] The F/A-18 employs a G-limiter that prevents exceeding positive G limit under most conditions while permitting full symmetrical and unsymmetrical (rolling) maneuvering. [Encl (NATOPS)]

[vi] The G-limiter may be overridden by momentarily pressing the paddle switch with the control stick near full aft. Command limit G is then increased by 33%. [Encl (NATOPS)]

[redacted]

UNITED STATES MARINE CORPS
MARINE AIRCRAFT GROUP 11
3D MARINE AIRCRAFT WING
MARINE CORPS AIR STATION MIRAMAR
PO BOX 452039
SAN DIEGO CA 92145-2039

5800
CO
AUG [illegible]

From: Commanding Officer, Marine Aircraft Group 11
To: [redacted] USMC

Subj: COMMAND INVESTIGATION OF THE MARINE FIGHTER ATTACK SQUADRON 232 CLASS A FLIGHT MISHAP THAT OCCURRED ON 28 JULY 2016

Ref: (a) JAG INSTRUCTION 5800.7F

1. This appoints you, per chapter II of reference (a), to inquire into the facts and circumstances surrounding the Class A flight mishap that occurred on 28 July 2016.

2. Investigate the cause of the mishap, resulting in death and damages, and any fault, neglect, or responsibility therefore, and recommend appropriate administrative or disciplinary action. Report your findings of fact, opinions, and recommendations in letter form by 9 September 2016, unless an extension of time is granted. If you have not previously done so, read chapter II of the reference in its entirety before beginning your investigation.

3. You may seek legal advice from the 3d Marine Aircraft Wing, Staff Judge Advocate during the course of your investigation.

4. By copy of this appointing order, Marine Aircraft Group 11, S-1 is directed to furnish necessary clerical assistance.

5. The point of contact for this matter is the Adjutant, [redacted]

[redacted]

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ENCLOSURE (1)

UNITED STATES MARINE CORPS
MARINE AIRCRAFT GROUP 11
3D MARINE AIRCRAFT WING
MARINE CORPS AIR STATION MIRAMAR
PO BOX 452039
SAN DIEGO, CA 92145-2039

5800
CO

SEP 6 2016

From: Commanding Officer, Marine Aircraft Group 11
To: [redacted] USMC

Subj: EXTENSION OF COMMAND INVESTIGATION

1. The command investigation on the Class "A" flight mishap of 28 July 2016 is hereby extended for a period of 30 days. Report your findings of fact, opinions and recommendations by 8 October 2016.

2. The point of contact for this matter is the Adjutant, [redacted]

[redacted]

ENCLOSURE (2)

UNITED STATES MARINE CORPS
MARINE AIRCRAFT GROUP 11
3D MARINE AIRCRAFT WING
MARINE CORPS AIR STATION MIRAMAR
PO BOX 452030
SAN DIEGO, CA 92145-2030

5800
CO
OCT 17 2016

From: Commanding Officer, Marine Aircraft Group 11
To: [redacted] USMC

Subj: EXTENSION OF COMMAND INVESTIGATION

1. The command investigation of the Class "A" flight mishap of 28 July 2016 is hereby extended for a period of 30 days. Report your findings of fact, opinions and recommendations by 8 November 2016.

2. The point of contact for this matter is the Adjutant, [redacted]

[redacted]

ENCLOSURE (2)

UNITED STATES MARINE CORPS
MARINE AIRCRAFT GROUP 11
3D MARINE AIRCRAFT WING
MARINE CORPS AIR STATION MIRAMAR
PO BOX 452039
SAN DIEGO, CA 92145-2039

5800
CO

NOV 7 2016

From: Commanding Officer, Marine Aircraft Group 11
To: [redacted] USMC

Subj: EXTENSION OF COMMAND INVESTIGATION

1. The command investigation on the Class "A" flight mishap of 28 July 2016 is hereby extended for a period of 30 days. Report your findings of fact, opinions and recommendations by 8 December 2016.

2. The point of contact for this matter is the Adjutant, [redacted]

[redacted]

ENCLOSURE (2)

UNITED STATES MARINE CORPS
MARINE AIRCRAFT GROUP 11
3D MARINE AIRCRAFT WING
MARINE CORPS AIR STATION MIRAMAR
PO BOX 452039
SAN DIEGO, CA 92145-2039

5800
CO
DEC 8 2016

From: Commanding Officer, Marine Aircraft Group 11
To: [redacted] USMC

Subj: EXTENSION OF COMMAND INVESTIGATION

1. The command investigation on the Class "A" flight mishap of 28 July 2016 is hereby extended for a period of 30 days. Report your findings of fact, opinions and recommendations by 8 January 2017.

2. The point of contact for this matter is the Adjutant, [redacted]

[redacted]

ENCLOSURE (2)

UNITED STATES MARINE CORPS
MARINE AIRCRAFT GROUP 11
3D MARINE AIRCRAFT WING
MARINE CORPS AIR STATION MIRAMAR
PO BOX 452039
SAN DIEGO, CA 92145-2039

5800
CP

From: Commanding Officer, Marine Aircraft Group 11
To: [redacted] USMC

Subj: EXTENSION OF COMMAND INVESTIGATION

1. The command investigation on the Class "A" flight mishap of 28 July 2016 is hereby extended for a period of 30 days. Report your findings of fact, opinions and recommendations by 8 February 2017.

2. The point of contact for this matter is the Adjutant, [redacted].

[redacted]

ENCLOSURE (2)

28 July On-Scene Commander Statement, 29 July 2016, 0224

[redacted], HMLA-169

410-349-7229

On 28 July, HMLA-169 launched a section of 2xAH-1Z aircraft ISO the AAC defense, part of ITX 5-16. We were fragged to support a single TOS, 2115-2245. On station per the flows was VMFA-232 from 2045-2115 with a planned tank hit from 2115 to 2145 and a 2nd TOS from 2145-2215. Additionally, VMU-1 was flowed for a 2000-2300 TOS.

Our mission was to provide CAS during our time on station, with a be-prepared-to task on SCAR.

At 1645, VR 67 conducted a section brief with the -2 copilot conducting the brief. Members in the flight were [redacted] (LD aircraft commander - myself), [redacted] (LD copilot), [redacted] (-2 aircraft commander), and [redacted] (-2 copilot). All crew members were qualified for the mission set and adhered to crew day requirements. After the section brief, all crew members had questions for [redacted] related to communication frequencies, enemy scheme of maneuver, tactical triggers for DAS to CAS transition, and mission flow. The -2 copilot, [redacted] answered questions adequately and I had minor administrative cleanup briefing items as the actual section lead.

Post the section brief, [redacted] and I conducted a NATOPS cockpit brief discussing crew responsibilities and cleaned up items pertaining to the brief. We elected to meet at the aircraft at 2030 for a 2055 launch.

The scheduled dictated that I would be taking a hotseat shutdown from [redacted] at 1815 in which I received the aircraft in good working status. I turned over with [redacted] for A/C 41 and signed the A-Sheet in OOMA for the hotseat.

Our scheduled departure time was 2055 with a RIO at 2050. The -2 aircraft was having minor maintenance issues, so I elected to push on timeline and support the FRAG. I communicated with my -2 aircraft that we would be departing and to execute the straggle plan. [redacted] acknowledged and my aircarft departed on timeline.

On takeoff, [redacted] was the flying pilot in the front seat. He checked our aircraft on with DASC, "ACME Air" and received routing with safety of flight instructions. We proceeded west of R-220 along the Quackenbush range to our objective area, Lavic Lake, via California routing in the R-2501N. Approaching CP Las Angeles, we switched from DASC to the Air-O, callsign Ripper 14. Ripper 14 gave us routing instructions to HA Erin, and to hold 2k and below. We acknowledged and complied with his instructions.

Upon check-in at approximately 2115, with Ripper 14, Devil 43, and single F/A-18 was on station working for Ripper 14. He had been tasked with investigating a column of armored tanks pushing East to West

ENCLOSURE (3)

along an MSR in Lavic Lake. Watchdog, the single UAS fragged for the TOS, was not on station. Devil 43 received investigate tasking from Ripper to track the same targets as Devil 43 and to hold in HA Erin. We asked Ripper to hold in BP Eel in order to be well clear of Devil 43's impacts. Once a DAS attack brief was passed to Devil 43, an interloper entered the range as noticed by his headlights pushing south through the objective area. Coyote 14V called a training hault and tasked us with tracking that single vehicle. I pushed to Ripper 14 on TAD 1 that I was contact the vehicle and was unable to breakout what type of vehicle it was. We eventually determined that it was a civilian SUV with a camper topper on the truck bed. At this point, Coyote gave us explicit directions through Ripper 14 to track the vehicle. All players on the objective area were instructed to remain in a cold status.

My aircraft tracked the vehicle moving Northbound and watched it egress the range. We relayed this to Ripper 14 on TAD-1. Coyote 14V asked for a grid to confirm its location, and my copilot passed it over TAD. Ripper 14 at this time was controlling the stack and passed us a gameplan and 9-line. It was as follows:

Type 3 / BOT / Simulated R/G

9 Line:

1) BP Nile
2) 072
3) 473
4) 1939'
5) 3 x vehicles
6) NU 597 335
7) Talk On
8) SW 8800
9) RP Nile, 1000' and below

R/R: FAH – 115-145

We read the 9 line back, and received approval to attack the targets with simulated ordnance, with an engagement window from 2158-2210. We went with readbacks and began our engagement window, dry.

Concurrently, Devil 43 was setting up for an attack on target IVO NU 6573 3256. Once the range restriction was lifted, live fire was approved and Devil was in from the south for a single BDU-45 drop. At this point, my -2 reported entering the objective area at approximately 2145. I rejoined the flight, and proceeded with the operation.

My section was told that we could fire live ordnance on the targets that we received in the 9-line above, receiving an updated engagement window through 2207. We reported commencing engagement and went live fire. Devil reported in from the south on TAD-1 at which point, I slewed my sensor to observe

his impacts. I was capture the target but was unable to acquire his BDU-45 impact. He called off, no-drop due to "switchology errors."

My section at this point at approximately 2208 received an updated from Ripper 14 that Devil was checking off station for fuel and we received SCAR tasking in which he deemed us "The SCAR."

I maneuvered my section back to BP Eel – HA Erin at 1500' AGL. At this point, there were no other aircraft on station, and I pushed my copilot the communications. I assumed the flying-pilot role. We began coordinating with Ripper 14 for targets in our objective area and tracked a column of armored assets on the south side of Killbox BKB16 in TAI East. We immediately found the target and setup ourselves up for an attack. I looked out the left side of the aircraft and noticed the vehicle that had originally departed the range was returning from the North. We relayed this information to both Coyote 14V and Ripper 14 which put the range in cold status again. Our section was once more tasked with tracking the vehicle. At this point, we watched in make a U-Turn and head at a high rate of speed to the north. Coyote 14V tasked us with flying towards the vehicle, at altitude, in order to determine its intent. I passed the controls back to my copilot and began working the FLIR in order to acquire the interloper. By the time we transited towards the vehicle, it had already departed the range. We again, relayed this to the controlling authorities and the range went hot.

At approximately 2150, we heard Devil 43 check back on station. Our role was "The SCAR" during his check-in. Ripper 14 directed Devil 43 to proceed to the overhead at 17-19,000 MSL and to report established. He complied and maneuvered from the east to the overhead. Ripper 14 tasked him once more to track the same target he had previously attempted to drop on and he quickly gained tally. I confirmed that I was "The SCAR" and Ripper 14 passed me the responsibility for Devil's tasking.

My copilot tasked Devil 43 with target tasking on the target he acquired in his sensor at NU 657 325, elevation 2205' MSL. He called tally and [redacted] passed a final attack heading to him. Ripper 14 asked our aircraft if we could make the final attack heading less restrictive, so we complied at gave Devil 43, 340-020 degrees magnetic. Devil 43 correctly read the FAH back, Coyote 14V approved the attack, and Devil 43 attacked with request to drop 2xBDU-45s.

On his initial attack, Devil 43 successfully hit the target with his first BDU-45 and missed short by 20m on the second BDU-45. We passed to Devil 43 as he egressed back to the overhead, mission successful, 1xBRDM destroyed. Devil 43 acknowledged and reported established 17-19,000 in the overhead. I coordinated with Coyote 14V to follow Devil 43's impacts with my section 3 minutes in trail for rockets and guns. Coyote approved our attack with the same final attack heading and we pushed for the attack. Our section conducted a trail attack with a left pull on the target Devil employed on, and egressed the target area. Once we were complete with attacks, we requested for Devil 43 to update us with his time on station remaining and ordnance. He stated that he had gun remaining. I instructed my copilot to request a gun run on a "paint" of squirters (simulated personnel) running to the south. Devil 43 acknowledged and called capture.

At some point during this transmission with Devil, Ripper 14 reported that he would be "off frequency" for 3 minutes. Our aircraft communicated our intent to run Devil 43 on the same target utilizing gun.

Coyote approved with the same final attack heading restriction. Once I received an approval from Coyote, I asked Devil 43 if he was "low level qualified." He replied yes. I asked this based on previous experience with fixed wing aircraft and their gun employment envelopes. I approved him for the attack he reported "pushing."

I acquired Devil 43 through my NVGs and followed him into the target. I assessed his geometry and he released gun from a level-lay tip-in hitting 50 meters south of his previous BDU-45 impacts. I was able to acquire his impacts in my FLIR and passed to Devil 43 that his impacts were affective and directed him to report the overhead at 17-19k. He complied. On pulloff from the target, Devil 43 dispensed flares to prevent simulated MANPAD shots. We were able to acquire those flares visibly through our NVDs.

Once Devil 43 reported the overhead at 17-19k, he stated that he "had enough gun and fuel for one more attack." I reported this information to Coyote 14V and asked for another attack on squirters egressing from the previous bomb target to the North. My copilot instructed Devil 43 to call contact on our IR Diode in which we had emplaced on the intended target. Devil 43 reported pushing from the overhead, in the FAH, and called contact on our IR mark. I instructed Devil 43 to "hit the mark." At this point, as the non-flying pilot, I went heads down to view the FLIR imagery and assess impacts. I was waiting for his gun to impact the target, and I noticed an aircraft enter my FLIR field of view. I determined that he was too low since he was within my field of view and as I came heads up. At this point, the aircraft impacted the deck. I was unable to make a "pull-up" call to Devil 43 I watched the remains of the F/A-18 break apart from South to North IVO the target. My -2 incredulously asked "what was that" to which I replied, I think he hit the deck.

At this point, I relayed to my copilot that he likely hit the deck. [redacted] confirmed and I immediately sent this information to Coyote 14V. Coyote 14V asked me to confirm this message, in which I did, and I shifted my focus to on-scene-commander.

I set a deconfliction altitude with my -2 and went low to assess the wreckage. My initial assessment was that there were no survivors. My -2 and I discussed this information, and I elected not to make this call over the radio. As the on-scene-commander, I began pushing as much information that I could to my -2 who relayed all of my transmissions to Coyote 14V. Within my cockpit, I had the FLIR image locked on the wreckage, searching for survivors. I was unable to locate the pilot.

At approximately 20 minutes into assuming on-scene commander, we found a single parachute that had appeared to deploy. Attached to the parachute was the ejection seat. I immediately relayed this to my -2 and his pushed it to Coyote 14V. Concurrently, a group of Coyotes supporting the exercise began a ground movement to the crash site. Our section relayed to Coyote 14V the direction to the wreckage and talked the personnel onto the parachute site. We were unable to communicate with them directly as they did not have UHF or VHF capability.

As the Coyotes were approaching the wreckage site, my aircraft was nearing minimum fuel. I elected to check-off station, leaving my -2, the high fuel bird, in the overhead to maintain on-scene commander. As we were egressing, I heard on TAD-1 that a single MQ-1 checked on station to assist. I reported clear the objective area with my -2 and with Coyote 14V.

ENCLOSURE (3)

My aircraft safely recovered to NXP SELF at approximately 2355. My -2 followed 10 minutes in trail and landed safely on deck at the SELF.

ENCLOSURE (3)

The following is a statement by me, [redacted] and is my recount of the events that occurred in 29 Palms training area on the 28 July 2016. All information recorded here is to the best of my recollection following the incident and the statement has been written at 0230 on the 29 July 2016.

On 28 July 2016, I, [redacted], and [redacted] from HMLA-169 as Viper 67 were tasked to provide close and deep air support in support of ITX. We departed from 29 Palms SELF to support Ripper 14 for a time on station of 2115 to 2245 in Lavic Lake. We were lead aircraft with [redacted] and [redacted] in Viper 68 were our wing, section callsign was Viper 67.

I was undertraining conducting a Low Light Level event as part of my series conversion onto the AH-1Z, I am the [redacted] attached to HMLA-169.

During planning we were informed that for any engagements whilst conducting deep air support we would be required to pass an elevation, grid and final attack heading restrictions and approval would be granted for any engagements by the Coyote (safety staff) before any live or simulated weapons release events.

We departed 5 minutes prior to our wing on timeline as the wing aircraft was trouble shooting and proceeded to the objective are as a single aircraft. We proceeded with our routing as cleared.

When checking on station with Ripper 14 and Coyote 14V we were passed a situation update that Devil 43 from VMFA-232 was the only other air and that Devil 43 had the SCAR, Devil 43 had identified a target and was given approval to conduct and attack with 1xBDU-49. Devil 45 checked off stating after approximately 15 minutes to go and refuel at the tanker. It was around this time that we were joined by our wing aircraft.

A civilian vehicle was sighted in the training area and the range was put in a cold status. Not long after this Ripper 14 took stack, brief, mark and control and commenced running CAS on the western side of the objective area and we conducted dry training onto a correlated target. Devil 43 checked back on station approximately 2150 and was given routing to hold to the east of the objective area. Once the civilian vehicle was confirmed clear of the range, the range was put back in a hot status and we were passed a game plan 9-line for type three control onto the target that we engaged from 'Time now to 07', I did not write the 9-line as I was the flying pilot.

Ripper 14 passed up an investigate tasking to us vicinity of grid 11S NU 662 336 and started running DAS, and me as the non flying pilot proceeded to pass Devil 43 the details of a target tasking and requested his ordinance and Time on station. We correlated on the same target and Devil 43 confirmed he was capture in his sensor. From there we passed elevation, Grid and restrictions. I do not have the elevation and grid as I was reading from the system however the restrictions were Final Attack Heading 340-020, all effects east of the 67 easting and that Viper 67 flight would be established in BP Eel approximately 8km to the South East for lateral de confliction. It was then requested that we also pass line 1 being the IP location and I passed C8, being 8nm to the south of the target. It took a few minutes to get this information passed for approval. Whilst we were waiting for approval I asked Devil 43 to update his time

on station and he passed he has 20 minutes remaining. The restrictions were then approved by Ripper 14 and Coyote 14V, we requested to be in a three minute train with Devils impact with Rocket and Gun and it was also approved by Coyote 14V.

With approval we ran Devil 43 from the south for 2xBDU 45 with good impacts sighted and we followed with rocket and gun as requested and we each egressed maintaining lateral de confliction. Not long after Ripper 14 was required to push to a different frequency and we were passed the SCAR. We then confirmed that Devil 43 was low level qualified and with a confirmation from Devil 43 that he was qualified we painted targets 20m to the north of the previous impacts and we requested that Devil 43 engage with 20mm on those targets with the same restrictions as before. This was approved by Coyote 14V. Upon pushing we visually acquired the aircraft and Devil proceeded with the attack and engaged with 20mm with good impacts observed, he pulled off with an egress to the right to the overhead as instructed.

Once established in the overhead Devil 43 reported that he had sufficient time on station and ammunition to complete one more attack without request from our aircraft. With approval from Coyote 14V, Devil 43 pushed for an attack with the same restrictions. We utilized our sparkle to correlate a new target within 50m and he called that he was capture. We visually acquired Devil 43 and watched him enter the dive. I was the flying pilot and was watching Devil's engagement. I glanced at the FLIR image to observe impacts and saw an object enter the frames. It was followed by a large explosion which was Devil 43 impacting terrain.

We then passed to Coyote 14V that Devil 43 had impacted the ground, we then commenced to try and gain situational awareness as to what has happened to Devil 43 and passed the there was an impact vicinity of the target grid with fire spread approximately 200m north. After orientating we detached Viper 68 to remain at 5000' MSL while we went low to 500-1000' AGL to observe. We set up for an orbit over the site. Initially both the sensor and the NVD were ineffective because of the fire. We confirmed that Mercy Air had been dispatched.

After approximately 20 minutes we identified a parachute with an attached seat and we sent an 8 digit grid to safety staff. We could not identify any movement. We then attempted to go lower and use our searchlight to identify any movement after a request from the Coyotes, this was also ineffective. We were informed that 4 vehicles had been dispatched to move to the site by ground. Constant dialogue was going back and forth to confirm the status of Mercy Air. We assisted with talking these vehicles onto the site as they were disorientated. An MQ-1 checked on station as we were nearing min fuel.

We remained on station until we hit Bingo fuel at approximately 2345. Viper 68 remained on station to assist. Viper 67 landed and de-armed the aircraft and landed at the 29 Palms self at approximately 2355.

If any further information is required my contact details are:

[redacted]

ENCLOSURE (3)

Events of the Night of 28 July, 2016, Viper 68 Copilot Perspective

The following is the events of the night of 28 July, 2016, from the perspective of the -2 copilot in a section of two AH-1Z aircraft, call signs "Viper 67 and Viper 68," acting as the SCAR during a low light level deep air support and close air support training sortie in the Lavic Lake and Gays Pass ranges at Marine Air Ground Training Center Twenty Nine Palms, California. The section lead was [redacted] his copilot was [redacted] the -2 signer was [redacted] and the -2 copilot was myself, [redacted]. Our scheduled time on station was 2115-2245.

For our time on station the lead aircraft departed on time, 2100, while my aircraft was delayed due to mechanical issues with the gun and straggled, departing at approximately 2125. Upon reaching the objective area the lead aircraft was already established in Kill Box 16 (KB16) and was attempting to locate an interloper that had wondered onto the northern portion on the kill box at the direction of the FAC on scene, call sign Ripper Air. After the headlights from the interloper went dark the section reconstituted in BP Eel and was pushed to BP Nile to run dry CAS attacks on targets just south west of Lavic Lake. The section was passed a type III by the JTAC and ran one dry attack followed by two attacks with ordnance on targets there.

After these attacks the section was passed SCAR and assumed control of the DAS scenario being run into KB16. The section pushed from BP Nile to BP Eel to facilitate engagements into KB16. Within the kill box where two engagement areas: West Engagement Area and East Engagement Area. As the SCAR the section located a target on the western most edge of the West Engagement Area and directed Devil 43, operating as a single, to run an attack on that target dropping two BDU-45s with final attack headings south to north. Devil 43 successfully dropped his ordnance and appeared to achieve hits in close proximity to the target. After this attack our section pushed in for rockets and guns on the same target, same restrictions, 3 minutes in trail of Devil 43. After our attack Devil 43 indicated that he still had gun remaining and could run another attack. Our section directed him to attack simulated squirters from the same target, same restrictions, with gun only.

At this point I was the pilot at the controls; my view direction was south west to north east from BP Eel to the target. As Devil 43 approached the target over our right shoulder our section was oriented north, and my immediate attention was on flying a good formation off my lead in low light level conditions. As Devil 43 employed his gun ordnance my signer, [redacted] from the rear seat made a comment about Devil 43's good effects on target, I glanced to my right 1 o'clock low and could see what appeared to be the flashes from either Devil 43's gun impacts or muzzle flashes. My immediate impression was that it was his muzzle flash and that it appeared to be dangerously close to the target. Almost within the same instant I witnessed a large fireball originating at the target that moved rapidly north. It was immediately apparent to both [redacted] and myself that the fireball was Devil 43 impacting the ground.

Upon realizing what we witnessed our section immediately began communicating what occurred to Ripper Air and the Coyote on scene. We also immediately oriented our sensors on the impact sight to assess for any trace of a survivor. I scanned the immediate impact site and the area

ENCLOSURE (3)

around it for signs of a parachute either in the air or on the ground and found none. During this time our section coordinated with the Coyote for Mercy Air to proceed to the crash and for ground personnel to make their way there as quickly as possible.

There appeared to be two impact sites from my perspective, one in the immediate vicinity of the target which was where Devil 43 first impacted the ground, the second was approximately 500 meters north of the first impact on the south west portion of a large hill. It appeared that Devil 43 impacted the ground at high speed in the vicinity of the target then skidded along the ground approximately 500 meters into the hill. My impression, based on the size of the fireball, the amount of burning debris, the apparent trench-like impact craters, and the absence of large pieces of the mishap aircraft, was that the crash was not survivable. It also appeared that based on the profile of the mishap aircraft and the fact that it was employing its gun right up until the moment of impact that it was unlikely the pilot could have ejected safely.

In order to better assess the impact site and speed up the process of locating and directing rescue personnel onto a survivor our section split up with Viper 67 proceeding direct to the crash and Viper 68 proceeding to BP Eel to act as a communication relay and give Viper 67 freedom of movement around the impact site. Upon completing a low pass over the impact site Viper 67 located a suitable landing zone for Mercy Air and then located what appeared to be a parachute with a seat attached. Viper 67 passed the grid, 11S NU 662 336, elevation 2169, initially as the site of the parachute. Viper 67 then sent an updated grid, 11S NU 66243 33653, elevation 2198. The updated grid seemed to point to an area in the immediate vicinity of the second impact.

As the Coyotes approached in their vehicles they asked if Viper 67 could shine his searchlight onto the parachute to guide them to it. Viper 67 attempted to get in position to shine his search light on the parachute but found the burning debris caused an unsafe level of blooming in his NVGs that impaired his visibility. At that point it was decided that Viper 68, as we were in an aircraft with an IR pointer and Viper 67 had only and IR alignment diode, could illuminate the parachute for the coyotes if they had NVGs. The question of NVGs was relayed to the Coyotes and their affirmative response was relayed back. Viper 68 pushed closer to the impact site to facilitate this and Viper 67 talked our IR pointer onto the parachute. At this point I could clearly distinguish the parachute approximately 20 meters west of the second impact site. As the Coyotes approached the immediate vicinity of the impact site we shined our IR pointer onto the parachute. Whether or not the IR pointer helped I could not tell. The Coyotes required verbal direction from our section onto the impact site and the parachute.

At this point Viper 67 was bingo fuel and was forced to depart the area and return to the SELF. Viper 68 had an additional 200 pounds of fuel and remained on station.

In my FLIR I watched the Coyotes depart their vehicles and find the parachute. Upon finding the parachute the Coyotes made no excited moves or gestures and did not appear to find anything of note. Within a few minutes they returned to their vehicle. We concluded that they did not find a survivor at that location.

Once the Coyotes had found the impact site we were getting close to our bingo fuel as well. Once Viper 69, a single UH-1Y, arrived in the area to relieve us we checked off station and returned to the SELF as a single.

End of statement.

ENCLOSURE (3)

29 July 2016, 0057

Subj: Statement of [redacted], HMLA-169, "Viper 68"

I was the aircraft commander of the -2 aircraft, "Viper 68" flying in support of ITX mission number 2867, checking on station approximately 2150, working in vicinity of Lavic Lake training area in the R-2501. I was in the rear seat for the flight and was the primary sensor operator. My copilot, [redacted], was the primary flying pilot in the front seat.

VR 67 departed the SELF on timeline while we straggled due to ordnance troubleshooting. We executed our straggle plan, joining VR 67 in the objective area. The flight was reconstituted at approximately 2155. Once reconstituted, the flight was directed by RR 14 to push to BP Nile and was almost immediately passed a type III/BOT gameplan and attack brief. Below is a sequential listing of the major events of the time on station:

2156: VR 67 flt passed type III/BOT/rockets and guns gameplan with 10 minute engagement window. Attacks were conducted on a cluster of three vehicle targets at grid 11SNU 597 335 with final attack headings 115-145 and reciprocal. Engagement was complete at 2208 with both VR 67 and 68 expending rocket and gun ordnance without incident. DL 43 checked in with RR 14 during the type III engagement.

2208: VR 67 was passed SCAR from RR 14 at the completion of the type III engagement. VR 67 flight egressed the Killbox and established in the vicinity of BP Eel in order to best run the SCAR scenario.

Approx. 2209: DL 43 was passed investigate tasking at 11SNU 6578 3253, which appeared to be a single tank hulk that was painted by RR 14 as part of an armored column.

2211: RR 14 passed updated grid for another lone tank hulk at 11SNU 6450 3257/el 2216', painted as the rear trace element of the armored column.

2213: VR 67 passed target grid 11SNU 6573 3256/el 2205' to DL 43, and requested RR 14 and CY 14V approval for target tasking on the tank hulk. VR 67 added restrictions of attacks south to north, and all effects east of the 67 easting. VR 67 amended restrictions to final attack headings of 350-010. RR 14 recommended "opening up" the final attack heading, so VR 67 again amended the restrictions to final attack headings 340-020. RR 14 approved the attack, pending CY 14V approval. CY 14V requested VR 67 say again lines 1, 4, 6, 9. VR 67 passed requested information and attack was approved. VR 67 requested to run VR 67 flight one minute in trail for rockets and guns on the same target with the same restrictions, and both RR 14 and CY 14V approved.

The first attack by DL 43 was two BDU-45s on the passed target. The attack was successful, with the first bomb impacting what appeared to be directly on the target and the second approximately 20 meters short. DL 43 egressed south and VR 67 flight pushed in for rockets and guns. VR 67 flt executed a trail left attack without incident. VR 67 flt reset to BP Eel and requested approval to run DL 43 on the same target, same restrictions for gun only. The attack was approved by both RR 14 and CY 14V. VR 67 confirmed that DL 43 was low-level qualified, and DL 43 affirmed that he was. DL 43 completed the gun attack and executed a left pull off target climbing back to stack altitude and dispensing flares on the

ENCLOSURE (3)

climb. RR 14 was in and out of communication, stating that he would be off frequency for 1-3 minutes at a time. CY 14V maintained good comms throughout the duration of the time on station.

VR 68 lost visual contact with VR 67 approximately 30 seconds prior to DL 43's first gun attack. The briefed "blind" procedures were executed by both VR 67 and 68, and VR 68 regained visual contact as the flight turned inbound to the target to assess DL 43's geometry and BDA. Once VR 68 reported visual to VR 67, VR 67 began talking the flight onto DL 43's position approximately off the nose of VR 67, high. Both VR 67 and VR 68 were visual DL 43 for the first gun attack.

From VR 68's perspective, DL 43's first gun attack seemed to be standard and safe. VR 68 was able to visually acquire DL 43 as he was in the dive, and saw his impacts on the target over my left shoulder as we continued our turn back into position on VR 67. VR 68 was capture the target when DL 43's rounds impacted and the rounds appeared to be approximately 20 meters short of the target. VR 68 lost visual contact with DL 43 right after seeing his impacts, but regained visual when he dispensed flares while climbing out on his pulloff.

On pulloff, DL 43 advised VR 67 that he had enough gun remaining for an additional attack. VR 67 advised DL 43 that the same restrictions were in effect for the second gun attack, and painted notional squirters to the north, approximately 50 meters. VR 67 again talked the flight onto DL 43's position, and VR 67 and 68 were visual DL 43 and contact DL 43's sparkle when he entered the dive. VR 68 was capture the target in medium field of view with a nose-on aspect to the target when DL 43 was in the dive. DL 43 seemed to wait significantly longer on the second gun attack prior to opening fire. DL 43 seemed excessively low, as if he were pressing the target. VR 68 had the target and DL 43 in the sensor when DL 43 opened fire. VR 68 was capture both DL 43 and his impacts in medium field of view, and the aircraft appeared very close to the target – much lower than the previous attack. The aircraft appeared to impact the target area almost exactly where the gun impacts were. There was little if any time between DL 43's last rounds impacting the target and a large fireball when the aircraft impacted the ground. The aircraft's impact caused the sensor to completely de-gain producing an unclear image. Looking outside on the NVG's, there was a large fireball right at the target area and it extended in a linear array approximately 200-300 meters north to a hill northeast of the target. DL 43 impacted the deck sometime around 2230.

After a brief discussion over intraflight with VR 68, VR 67 reported to CY 14V that DL 43 appeared to impact the deck. CY 14V immediately put the exercise in an emergency stop status, and VR 67 assumed the role of the on-scene commander. VR 67 and VR 68 were holding Eel-Erin at approximately 4500' MSL at this time, and conducted sensor sweeps of the crash site searching for any sign of ejection by DL 43. VR 67 and 68 were unable to break out any significant detail from the holding altitude, so VR 67 went lower for better sensor performance while VR 68 remained at 5000' MSL and above to maintain positive comms with CY 14V. The crash site was linear, generally oriented south to north, approximately 200-300 meters in length, approximately 50 meters wide, and had two distinctive clusters of burning material – one just north of the target and one at the base of a prominent hill to the north.

CY 14V was conducting the coordination with Mercy Air and advising VR 67 flight of any updates. VR 68 was relaying any information passed between VR 67 and CY 14V. Approximately 20 minutes after the crash, VR 67 was able to break out a parachute and seat in his sensor. VR 68 passed the parachute grid to CY 14V, along with a grid for what appeared to be a suitable LZ for Mercy Air. CY 14V advised VR 68 that there was a vehicle convoy of Coyotes inbound to assist. They were driving from the Coyote perch northeast to the crash site. VR 68 remained in a high orbit, and VR 67 remained in a low orbit searching for any other signs of a survivor. VR 67 reported bingo at approximately 2340 and checked off station. VR 68 remained for an additional 10 minutes. VR 68 guided the Coyote vehicles to the site of the parachute through the use of the IR sparkle in the general vicinity of the crash site, and then by talk on as the vehicles and personnel approached the site. Once the vehicles were on site and talked on to the parachute location, approximately 8-10 personnel got out of the vehicles and approached the site. They looked around the parachute and the seat, but appeared to not find any evidence of a survivor. VR 68 reported bingo and egressed the objective area at approximately 2350, just as a Reaper, "Diablo" checked in with CY 14V.

ENCLOSURE (3)

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TO CHANGE THIS CASUALTY REPORT, DISCARD THIS EMAIL, RETURN TO DCIPS-FORWARD, MAKE YOUR CHANGES AND GENERATE THE EMAIL AGAIN.

****
****

********** CASUALTY REPORT **********

****

Report Type: SUPP
Casualty Type: Nonhostile
Casualty Status: DECEASED
Casualty Category: Pending
Report Number: M01232VFBDA05
Personnel Type: Regular
Personnel Affiliation: Active Duty
Personnel Category: Obligated/Voluntary Service
Last Name: NORTON
First Name: RICHARD
Middle Name: S
Service: United States Marine Corps
Military Rank: MAJ
Military Unit of Assignment: MARINE FIGHTER ATTACK SQUADRON 232
Date/Time of Incident (New/Old): 20160728/2318
Incident City: TWENTYNINE PALMS
Incident State: CA
Incident Country: United States
Circumstance: ON 20160728 AT APPROXIMATELY 2025 LOCAL TIME, SNO TOOK OFF IN A SINGLE F/A-18C AIRCRAFT (AIRCRAFT 05) FOR ITX 5-16 EXERCISE. AT 2318 LOCAL TIME, MARINES ON THE GROUND SAW A AIRCRAFT HIT THE GROUND. THE RANGE OFFICERS SAW A SEAT AND PARACHUTE. HMLA 169 COMMANDING OFFICER CALLED THE OPERATION DUTY OFFICER (ODO) FOR MARINE FIGHTER ATTACK SQUADRON 232 (VMFA-232) AND STATED THAT MERCY AIR WAS ABOUT TO LAUNCH VIPER 67 AND 68. VIPER 67 AND 68 WERE ON SEEN AND CONDUCTING THE SEARCH. AT 2332 LOCAL TIME, HMLA-169 COMMANDING OFFICER CALLED TO INFORM THE ODO THAT VIPER 67 AND 68 HAD FOUND SNO AND SNO WAS PRONOUNCED DECEASED BY COMPETENT MEDICAL AUTHORITY WITHIN THE SEARCH AND RESCUE TEAM AT 2332 LOCAL TIME.
Died in/out of Medical Facility Treatment: Died Outside A Medical Treatment Facility
Date/Time of Death: 20180728/2332
Place of Death City: TWENTYNINE PALMS
Place of Death State: CA
Place of Death Country: United States
Duty Status: Present For Duty
Remarks: Investigation is still on going.
Software Version: DCIPS Forward - Version 8.0 Build: 70 Release Date: 01 May 2014

ENCLOSURE (4)

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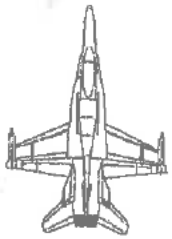
DCIPS-FORWARD, MAKE YOUR CHANGES AND GENERATE THE EMAIL AGAIN.

****

ENCLOSURE (4)

UNITED STAT. MARINE CORPS
MARINE FIGHTER ATTACK SQUADRON 232
MARINE AIRCRAFT GROUP 11
3RD MARINE AIRCRAFT WING, MARFORPAC
PO BOX 452055
SAN DIEGO, CA 92145



FLIGHT SCHEDULE FOR:

Thursday 28-July-2016

Julian Date:	6210
Sunrise:	06:00
Sunset:	19:50
Moonrise:	01:18
Moonset:	15:06
EENT:	20:50
% L.I.:	32.0%
Airfield Hours:	0730-2400

SDO:
DNCO:
ADNCO:
HW:
[redacted]

ODO: 07:10 12:00
ODO: 12:00 LPOD
AM INVENTORY:
PM INVENTORY:
PRO PILOT:
[redacted]

		PROJECTED	FLOWN
TYPE ACFT:	F/A-18C		
AS OF LPOD:	26 JUL 2016		
DAILY SORTIES/HOURS SCHED:	8 / 13.7		
MONTHLY SORTIES/HRS:		210 / 316.0	122 / 190.4
QUARTERLY SORTIES/HRS:		568 / 850.0	122 / 190.4
FY SORTIES/HRS:		1956 / 3200.0	1230 / 2031.1

THIS FLIGHT SCHEDULE CONSTITUTES OFFICIAL ORDERS: FOR OFFICIAL USE ONLY

A/T	C/S	BRIEF	ETD	ETA	DEP	ARR		PILOT	TR CODES	FPG	FLIGHT PLAN	AREA/TOS	FUEL	TAC	ORD	FLE	NOTES
1-1 1-2	DEVIL 01 DEVIL 07	07:20	09:40	11:15	KNKX	KNKX	*	[redacted]	3103,3104	1A7	A-27A / B	R-2501: 1000-1030	T HS/T	17 NET 7	ABCDEFG ABCDEFG	MED	1
2	DEVIL 19	10:00	12:00	13:30	KNKX	KNKX			2102 6736	2J2	A-03 / 17	R-2510 1200-1300	T	20 BASE	ABC	MED	5
3-1 3-2	DEVIL 02 DEVIL 13	09:20	11:40	13:20	KNKX	KNKX	*		3103,3104	1A7	A-27A / B	R-2501: 1200-1245	T	18 NET 8	ABCDEFG ABCDEFG	MED	2
4-1 4-2	DEVIL 04 DEVIL 12	18:00	20:25	22:35	KNKX	KNKX	*		3103,3104,3106 2202	1A7	A-27A / B	R-2501: 2030-2115	T	18 NET 8	ABCDEFG ABCDEFG	MED	3
5-1 5-2	DEVIL 03 DEVIL 14	18:00	20:25	21:40	KNKX	KNKX	*		3103,3104,3106	1A6	A-27A / B	R-2501: 2045-2115 2145-2215	T	17 NET 7	ABCDEFG ABCDEFG	MED	4

* SECTION LEAD ** DIVISION LEAD @EVALUATED +MISSION COMMANDER

FLIGHT NOTES
1. ITX CAS ISO 3/7 MAC. MSN #2831.
2. ITX CAS ISO 3/7 MAC. MSN #2833.
3. ITX CAS ISO 3/7 AAC. MSN # 2843. AR PROVIDED BY OMEGA.
4. ITX CAS ISO HMLA-169. MSN #2841. POC: CAPT MAST 760-830-9935
5. LOG DIVE CODE. HOT SEAT WITH EVENT 1 AND SHUTDOWN FOR TRUCK FUEL.

ODO NOTES
1. PILOTS LOG FLIGHTS AND SIMS IN MSHARP.

ATOPS: AT WHAT AIRSPEED IS THE LOCKED WHEEL PROTECTION CIRCUIT OF THE ANTI-SKID SYSTEM DISABLED?
SOP: CAN YOU RE-ATTEMPT TAKE OFF AFTER HIGH SPEED ABORT?
TACTICAL: IR-3 ROT?

NOTES
0730: FOD WALK.
1630: BARRACKS CLEAN UP.
1500: OPS / MAINT MEETING.
1700: TECH TRAINING.
1900: BARRACKS CLEAN UP.

THIS FLIGHT SCHEDULE REQUIRES 4 RBA.

ORDNANCE
A. LPOD
B. DOUBLE-BUBBLE
C. CATM-9X
D. 2 X MK-82 HE
E. 1 X GBU-16 HE
F. 250 X 20MM PGU-28
G. 30F

LEAVE/ TAD:
[redacted]

CALA OPS

[redacted]
OPERATIONS OFFICER

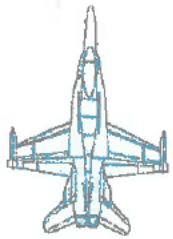
[redacted]
COMMANDING OFFICER

ENCLOSURE (5)

UNITED STATES MARINE CORPS

MARINE FIGHTER ATTACK SQUADRON 232

MARINE AIRCRAFT GROUP 11
3RD MARINE AIRCRAFT WING, MARFORPAC
PO BOX 452055
SAN DIEGO, CA 92145



FLIGHT SCHEDULE FOR:

Thursday 28-July-2016

Julian Date:	6210
Sunrise:	06:00
Sunset:	19:50
Moonrise:	01:18
Moonset:	15:06
EENT:	20:50
% L.I.:	32.0%
Airfield Hours:	0730-2400

SDO: [redacted]
DNCO:
ADNCO:
HW:

ODO: 07:10 12:00
ODO: 12:00 LPOD
AM INVENTORY:
PM INVENTORY:
PRO PILOT:

[redacted]

		PROJECTED	FLOWN
TYPE ACFT:	F/A-18C		
AS OF LPOD:	26 JUL 2016		
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FY SORTIES/HRS:		1956 / 3200.0	1230 / 2031.1

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4-1 4-2	DEVIL 04 DEVIL 12	18:00	20:25	22:35	KNKX	KNKX	*		3103,3104,3106 2202	1A7	A-27A / B	R-2501: 2030-2115	T	18 NET 8	ABCDEFG ABCDEFG	MED	3
5-1 5-2	DEVIL 03 DEVIL 14	18:00	20:25	21:40	KNKX	KNKX	*		3103,3104,3108	1A6	A-27A / B	R-2501: 2045-2115 2145-2215	T	17 NET 7	ABCDEFG ABCDEFG	MED	4

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B. DOUBLE-BUBBLE
C. CATM-9X
D. 2 X MK-82 HE
E. 1 X GBU-16 HE
F. 250 X 20MM PGU-28
G. 30F

LEAVE/ TAD: [redacted]

CALA OPS

ENCLOSURE (5)

[redacted]
OPERATIONS OFFICER

[redacted]
COMMANDING OFFICER

AIRCRAFT STATUS												40.0%
01	03	04	05	06	07	10	11	12	30	31	22	

SPARES
5, (7)

COMERS

PROS:
10 (A)

EVT	CALLSIGN	BRIEF	A/C	ETD	ETA	T/O	LAND	HRS	PILOT	FUEL	ORDN	RANGE / TOS	NOTES	ORD EXPENDED
1-1	DEVIL 13	0720	06	0940	1115	09:40	11:00	1.3	[redacted]	HS	ABCDEFG	R-2501: 1000-1030		
1-2	DEVIL 01		01			09:40	11:00	1.3		T	ABCDEFG			
2	DEVIL 19	1000	[illegible]	1200	1330	12:01	13:28			HS/T	ABC	R-2510: 1200-1300		
3-1	DEVIL 02	0920	05	1140	1320	11:42				T	ABCDEFG	R-2501: 1200-1245		
3-2	DEVIL 15		07			11:42					ABCDEFG			
4-1	DEVIL [illegible]	1800	05	2025	2235	20:38				T	ABC?	R-2501: 2045-2110		
4-2	DEVIL 14		12								ABC?	2140-2210	cnx fce	
5-1	DEVIL 07	1800	06	2025	2140	20:25				T	ABC?	R-2501: 2030-2115		
5-2	DEVIL 03		07			20:25					ABC?			
6	DEVIL 08	A/R	10	TBD	TBD							NADPA		

FLOWN	2.6
SCHEDULED	13.7

NOTES:

Click Here For Weather   Click Here For NOTAMS

PUC 28A		
T	Low	T
E	EN pers near TRP 15 (11S NU 6747 3162 elev 2359')	E
F	India Co in defense sth of 25 northing. SST 2 (with FAC) on OP Argos. SST 1/5 IVO LZ Pigeon, c/s Thunder in PA1 as briefed. CAS spot pos 615m S SW of Echo pt	F
A	81mm firecapped.	A
C	FAC, RIPPER 14 S/B/M/C and approval sth and west of KB16 and nth of 28 northing. FAC BLADE 14 S/B/M/C. Expect multiple stay aboves, aways and employment restrictions to deconflict with friendlies. Expect usage of KB16 and SCAR/AR procedures.	C
H		
R		

A. LPOD
B. DOUBLE BUBBLE
C. CATM 9X
D. 2XMK82HE
E. 1XGBU16HE
F. 250 X 20MM PGU
G. 30F

Friendly SITREP 6A

Road guard (RG) 3: 11S
RG 4: 11S NU 7310 10S
RG 33: 11S NU 7252 26
RG 14: 11S NU 6678 05
RG 21: 11S NU 6115 05
Coyote Perch: 11S NU
Retrans site: 11S NU 637 097

ENCLOSURE (5)

AIRCRAFT STATUS BOARD

UPDATED: 21-Jun-16

MODEX	BUNO	STATUS	DESCRIPTION	FUEL CFG	LPOD	KY-58	HQ	JHMCS	MIDS	TCTS
01	165186		2.7 HOURS REMAINING		X	X	X	X	X	
03	165191		HYD LEAK/ ENGINE BAY HEAT SHEILD PNE REPAIR	SC	X	X	X	X	X	
04	165192	OOR	TOP GUN	SC	X	X	X	X	X	
05	165194		JHMCS AWP		X	X	X	X	X	
06	165218		RADALT INOP	SC	X	X	X	X	X	
07	165222		4.1 HOURS REMAINING / RADAR	SC	X	X	X	X	X	
10	165227		PRO 'A' 28 JULY	SC	X	X	X	X	X	
11	165230		DRAG BRACE MOUNT / AWM P&E	SC	X	X	X	X	X	
12	165193		FCS	SC	X	X	X	X	X	
20	164012	OOR	CECIL FIELD GONE FOREVER			X	X		X	
21	164734		LONGERON							
22	164266		TANK 4/ AFC 609			X	X	X	X	

LEGEND

UP

DOWN

OOR

ENCLOSURE (6)

CIT	SMUG	CVRS
X		RMM
X		RMM
X		RMM
		RMM
	X	RMM
X	X	RMM
X	X	RMM
X	X	RMM
		RMM
		TAPES
		RMM
		RMM

ENCLOSURE (6)

CANNED ROUTE PREVIEW FOR **A27A/A27B**

THIS BRIEF IS INTENDED FOR LOCAL AREA OR CANNED/STEREO ROUTE FLIGHTS ONLY

PART I - TAKEOFF DATA

1. DATE	2. ACFT Type/NO.	3. DEP PT/ETD	4. RWY TEMP	5. DEWPOINT	6. TEMP DEV	7. PRES ALT	8. DENSITY
160728			28C/82F	18C/64F	+13	N/A FT	N/A FT

9. SFC WIND	10. CLIMB WINDS	11. LOCAL WEATHER WATCH/WARNING/ADVISORY	12. RSC/RCR
VRB06KT	SEE ATTACHED	NONE	N/A

13. REMARKS/TAKEOFF ALTN FCST
SEE REMARKS

PART II - ENROUTE & MISSION DATA

14. FLT LEVEL/WINDS/TEMP		15. SPACE WEATHER				16. SOLAR/ LUNAR		LOCATION	
210	SEE ATTACHED		NO IMPACT	MARGINAL	SEVERE	BMNT	Z		
		FREQ				SR	Z	MR	Z
		GPS				SS	Z	MS	Z
		RAD				EENT	Z	ILLUM	%

17. CLOUDS AT FLT LEVEL	18. OBSCURATIONS AT FLT LEVEL RESTRICTING VISIBILITY	
[ ] YES [X] NO [ ] IN AND OUT	[ ] YES [X] NO	TYPE N/A — 7 miles visibility

19. MINIMUM CEILING - LOCATION	20. MAXIMUM CLOUD TOPS - LOCATION	21. MINIMUM FREEZING LVL - LOCATION
UNL FT AGL - N/A	300 FT MSL - KIPL	160 FT MSL - KNKX

22. THUNDERSTORMS		23. TURBULENCE			24. ICING				25. PRECIPITATION				
CHART		CHART			CHART				CHART				
[X] NONE	[ ] AREA [ ] LINE	[X] NONE	IN CLEAR	IN CLOUD	[X] NONE	RIME	MIXED	CLEAR	[X] NONE	DRIZZLE	RAIN	SNOW	PELLET
[ ]	ISOLATED 1 - 2%	LIGHT			TRACE				LIGHT				
[ ]	FEW 3 - 15%	MODERATE			LIGHT				MODERATE				
[ ]	SCATTERED 16 - 45%	SEVERE			MODERATE				HEAVY				
[ ]	NUMEROUS > 45%	EXTREME			SEVERE				SHOWERS				
HAIL, SEVERE TURBULENCE & ICING, HEAVY PRECIPITATION, LIGHTING & WIND SHEAR EXPECTED IN AND NEAR THUNDERSTORMS		LEVELS			LEVELS				FREEZING				
LOCATION		LOCATION			LOCATION				LOCATION				

PART III - AERODROME FORECASTS

26.	27. VALID TIME	28. SFC WIND	29. VSBY/WEA	30. CLOUD LAYERS	31. ALTIMETER	RWY TEMP	PRES ALT
DEST-KIPL	1727-2327	14010KT	7SM/NSW	SKC	2974 INS	42 C	N/A FT
DEST-KNKX	1815-0015	VRB05KT	7SM/NSW	FEW250	2990 INS	31 C	N/A FT

PART IV - COMMENTS/REMARKS

32. BRIEFED RSC/RCR		YES	X	NOT AVAILABLE	33. PMSV	342.2	34. ATTACHMENTS		YES		NO

35. REMARKS
METAR KIPL 281453Z AUTO 12010KT 10SM CLR 33/22 A2976
METAR KNKX 281455Z 00000KT 10SM FEW250 24/19 A2992

PART V - BRIEFING RECORD

36. WX BRIEFED TIME	37. FLIMSY BRIEFING NO.	38. FORECASTER'S NAME	39. NAME OF PERSON RECEIVING BRIEFING
Z	CR -	[redacted]	
40. VOID TIME	**41. EXTENDED TO/INITIALS**	**42. WX REBRIEF TIME/INITIALS**	**43. WX DEBRIEF TIME/INITIALS**
Z			

ENCLOSURE (7)

AVIATION WEATHER CENTER
NOAA NATIONAL WEATHER SERVICE

ADDS METAR Data

Data at: 0816 UTC 29 Jul 2016

KNKX 290755Z 00000KT 10SM SCT020 SCT200 21/17 A2985 RMK AO2 SLP100 T02110172 403280189

```
TAF KNKX 2903/3003 VRB05KT 9999 FEW020 SCT200 QNH2980INS
  TEMPO 2910/2916 8000 BR BKN008
  BECMG 2917/2919 27008KT 9999 FEW010 FEW250 QNH2976INS T18/2913Z T31/2923Z
```

KNZY 290752Z 31005KT 10SM FEW010 SCT250 21/19 A2983 RMK AO2 SLP102 T02110189 402560200 PNO $

```
TAF KNZY 2907/3007 VRB06KT 9999 FEW010 SCT250 QNH2982INS
  TEMPO 2910/2916 8000 BR BKN008
  FM291800 28011KT 9999 FEW010 FEW050 SCT150 SCT250 QNH2977INS
  BECMG 3004/3006 VRB06KT 9999 FEW012 BKN250 QNH2979INS T19/2913Z T26/2921Z FS30036
```

KNJK 290756Z AUTO 15004KT 10SM CLR 32/20 A2970 RMK AO2 SLP072 T03220200 404560283 $

```
TAF KNJK 2907/3007 VRB06KT 9999 FEW280 QNH2965INS
  FM291900 14010KT 9999 FEW080 SCT280 QNH2959INS
  TEMPO 2919/2923 9999 VCTS FEW060CB FEW150 SCT280 AUTOMATED SENSOR METWATCH 2907 TIL 2913 T28/2912Z
T46/2923Z FS30036
```

No METAR found for KNUC
No TAF found for KNUC

No METAR found for KTNP
No TAF found for KTNP

KNXP 290756Z 30006KT 10SM FEW200 34/06 A2992 RMK AO2 SLP085 T03390061 404440311 $

```
TAF KNXP 2903/3003 24009KT 9999 FEW200 QNH2984INS
  TEMPO 2903/2906 24014G21KT
  FM291130 VRB06KT 9999 FEW100 QNH2981INS
  BECMG 2923/3001 24017G24KT 9999 FEW250 QNH2983INS T29/2914Z T44/2822Z
```


USA.gov

US Dept of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Centers for Environmental Prediction
Aviation Weather Center
7220 NW 101st Terr., Room 118
Kansas City, MO 64153-2371

ENCLOSURE (7)

Unclassified

Maximum Solar/Lunar Illumination Summary (Daily)

Latitude: *35-00N*
Longitude: *116-00W*
Start Date: *28 Jul 2016*
Offset from Universal Time (UTC): *-0700*

Lunar Percent Illumination: *32%*

Hour	Solar Summary Altitude (deg)	Azimuth (deg)	Illuminance (lux)	Lunar Summary Altitude (deg)	Azimuth (deg)	Illuminance (lux)
2000	-2.78	295.15	99.3172	-39.11	350.20	0.0000
2030	-8.23	299.73	0.2763	-39.61	359.05	0.0000
2100	-13.43	304.66	0.0033	-39.21	7.91	0.0000
2130	-18.32	310.02	0.0006	-37.92	16.52	0.0000
2200	-22.82	315.89	0.0000	-35.82	24.69	0.0000
2230	-26.85	322.35	0.0000	-32.98	32.26	0.0000
2300	-30.30	329.42	0.0000	-29.52	39.19	0.0000
2330	-33.07	337.12	0.0000	-25.53	45.50	0.0000
0000	-35.06	345.36	0.0000	-21.10	51.23	0.0000
0030	-36.16	354.00	0.0000	-16.32	56.46	0.0000
0100	-36.34	2.81	0.0000	-11.25	61.27	0.0000

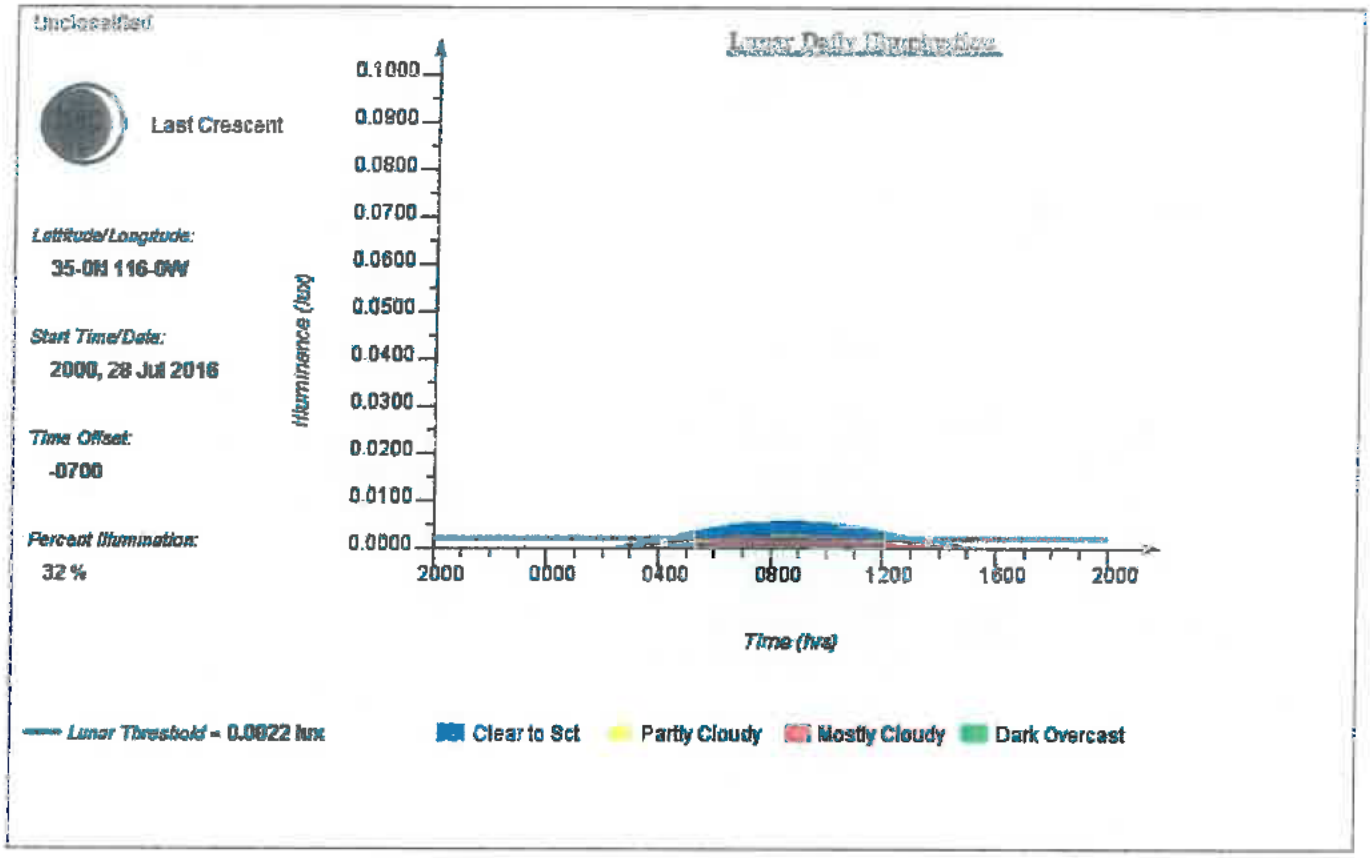
Unclassified

Solar/Lunar Monthly Rise/Set Summary

Latitude: *35-00N*
Longitude: *116-00W*
Start Date: *28 Jul 2016*
Offset from Universal Time (UTC): *-0700*

Date	Sunrise (hhmm)	Sunset (hhmm)	Hours Daylight (hhmm)	Moonrise (hhmm)	Moonset (hhmm)	%Illum
28Jul	0551	1950	1359	0110	1505	32
29Jul	0552	1949	1357	0158	1609	22
30Jul	0552	1948	1356	0250	1709	13
31Jul	0553	1947	1354	0346	1804	7
01Aug	0554	1946	1352	0445	1854	2
02Aug	0555	1945	1350	0546	1939	0
03Aug	0555	1944	1349	0646	2020	0
04Aug	0556	1943	1347	0746	2057	3
05Aug	0557	1942	1345	0843	2131	7
06Aug	0558	1941	1343	0940	2203	13
07Aug	0558	1940	1342	1035	2235	20
08Aug	0559	1939	1339	1129	2308	29
09Aug	0600	1938	1338	1223	2341	38
10Aug	0601	1937	1336	1316	----	47
11Aug	0601	1936	1335	1410	0017	56
12Aug	0602	1935	1333	1503	0057	66
13Aug	0603	1934	1331	1555	0140	75
14Aug	0604	1933	1329	1647	0228	83
15Aug	0604	1932	1328	1736	0321	90
16Aug	0605	1930	1325	1822	0418	95
17Aug	0606	1929	1323	1906	0519	98
18Aug	0607	1928	1320	1948	0622	99
19Aug	0608	1927	1319	2028	0728	98
20Aug	0608	1926	1318	2107	0834	94
21Aug	0609	1924	1315	2146	0940	87
22Aug	0610	1923	1313	2227	1047	79
23Aug	0610	1922	1312	2310	1153	68
24Aug	0611	1920	1309	2356	1258	57
25Aug	0612	1919	1307	----	1402	46
26Aug	0613	1918	1305	0046	1502	35

ENCLOSURE (7)
7/29/2016


Unclassified
Lunar Daily Illumination
Last Crescent
Latitude/Longitude:
35-0N 116-0W
Start Time/Date:
2000, 28 Jul 2016
Time Offset:
-0700
Percent Illumination:
32 %
Illuminance (lux)
0.1000
0.0900
0.0800
0.0700
0.0600
0.0500
0.0400
0.0300
0.0200
0.0100
0.0000
2000
0000
0400
0800
1200
1600
2000
Time (hrs)
Lunar Threshold = 0.0822 lux
Clear to Sct
Partly Cloudy
Mostly Cloudy
Dark Overcast

ENCLOSURE (7)

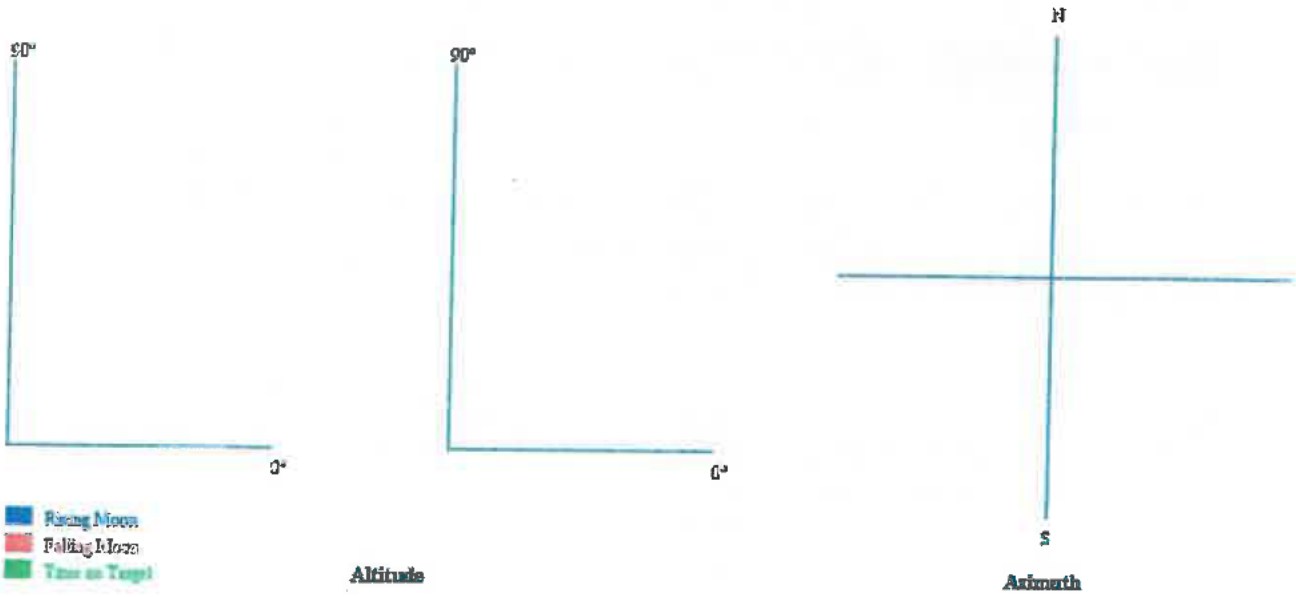
Unclassified

LUNAR ANGLES

Latitude/Longitude: 33-0N 116-0W
Date: 28Jul2016
Time Offset -0700

Sunrise: 0551
Sunset 1930
Moonrise: 0110
Moonset: 1505
BMNT: 0449
EENT: 2053

Time	ALT	AZ	LUX
2029	-39	24	0



ENCLOSURE (7)

Unclassified

Latitude: *35-00N*
Longitude: *116-00W*
Start Date: *28 Jul 2016*
Offset from Universal Time (UTC): *-0700*

Sunrise: *551*
Sunset: *1950*
Solar Passage (time): *1250*
Solar Passage (alt): *73.73758*
Hours of Daylight: *1359*
Moonrise: *110*
Moonset: *1505*
% Illumination: *32*
Lunar Passage (time): *805*
Lunar Passage (alt): *69.52225*
Begin Civil Twilight: *0523*
End Civil Twilight: *2018*
Begin Nautical Twilight: *0449*
End Nautical Twilight: *2052*
Begin Astronomical Twilight: *0412*
End Astronomical Twilight: *2128*

Hour	Sol ALT	Sol AZ	Sol LUX	Lun ALT	Lun AZ	Lun LUX
2000	-2.775304	295.151443	99.317203	-39.107344	350.196243	0.000000
2030	-8.230931	299.726494	0.276287	-39.609642	359.045853	0.000000
2100	-13.433890	304.655442	0.003291	-39.207934	7.908063	0.000000
2130	-18.323042	310.018480	0.000624	-37.923035	16.524707	0.000000
2200	-22.824686	315.893626	0.000000	-35.817537	24.685744	0.000000
2230	-26.851577	322.348206	0.000000	-32.982028	32.259431	0.000000
2300	-30.303994	329.424284	0.000000	-29.518892	39.194358	0.000000
2330	-33.074468	337.118333	0.000000	-25.529146	45.502250	0.000000
0000	-35.057590	345.359655	0.000000	-21.104461	51.234991	0.000000
0030	-36.164817	353.997743	0.000000	-16.323836	56.464945	0.000000
0100	-36.341125	2.811304	0.000000	-11.253354	61.271675	0.000000

Sol ALT = Solar Altitude Sol AZ = Solar Azimuth Sol LUX = Solar Illuminance
Lun ALT = Lunar Altitude Lun AZ = Lunar Azimuth Lun LUX = Lunar Illuminance

ENCLOSURE (7)

Sort By: Default Report

Keyword Sort:

Locations:

KNKX, KNXP, KPSP, KNZY, KNJK, KNYL

Data Current as of: Thu, 28 Jul 2016 14:25:00 GMT

KNKX MIRAMAR MCAS

M0126/16 - LHD WILL BE TEMPORARILY CLOSED FOR REPAIRS FROM 18 JULY - 16 SEPT 2016. IN THE INTERIM HLP 5 HAS BEEN AUTHORIZED FOR ROTARY WING FCLP'S AND EXTERNAL OPS. EXPECT ATC PREVENTIVE CONTROL MEASURES TO BE IN EFFECT AT HLP 5 AT PILOTS ON RISK. NVG OPS ARE APPROVED FOR NIGHT TIME OPS AT HLP 5. PLEASE DO NOT OVERFLY THE PRIMARY CALA, AND THE LHD PAD AS ORDNANCE AND CONSTRUCTION PERSONNEL WILL BE WORKING IN THESE AREAS. 18 JUL 17:57 2016 UNTIL 17 SEP 07:00 2016. CREATED: 18 JUL 17:57 2016

M0124/16 - RWY 06R/24L IS CLOSED FOR MAINTENANCE FROM 16 FEB - 03 OCT 2016. PLEASE PLAN AHEAD FOR FUEL IN CASE OF AIRCRAFT EMERGENCIES OR DIVERTS. SINGLE RWY OPS WILL BE IN EFFECT TO RWY 24R/6L. ALL ROTARY WING AIRCRAFT ARE ASKED TO UTILIZE THE HELO SPOTS TO THE MAX EXTENT POSSIBLE TO ALLEVIATE RWY CONGESTION. 12 JUL 18:10 2016 UNTIL 07 AUG 07:00 2016. CREATED: 12 JUL 18:10 2016

M0123/16 - ARRESTING GEAR LOCATED ON RWY 24R AT THE APPROACH END WILL BE RIGGED FLAT WITH A 3-5 MINUTE RESPONSE TIME. ARRESTING GEAR ON RWY 24R AT THE DEPARTURE END WILL BE FULLY RIGGED FROM 16 FEB - 03 OCT 2016. 12 JUL 18:10 2016 UNTIL 07 AUG 07:00 2016. CREATED: 12 JUL 18:10 2016

M0119/16 - HELO SPOT 4 IS CLOSED DUE TO CONSTRUCTION AND MAINTENANCE ON RUNWAY 24L/06R, AND THE CONTRACTORS HAUL ROUTE OFF SIERRA TAXIWAY. 06 JUL 15:57 2016 UNTIL 07 AUG 07:00 2016. CREATED: 06 JUL 15:57 2016

V0006/16 - AERODROME RADAR APPROACH MINIMUMS HAVE BEEN INCREASED TEMPORARILY DUE TO A 185 FOOT CRANE OPERATING 2 NM NORTHWEST OF RWY 6L APPROACH END. ASR RWY 6L CAT AB 860-1 434 (400-1), CAT CDE 860-1 1/4 434 (400-1 1/4). 02 FEB 19:59 2016 UNTIL 31 JUL 08:00 2016. 12 JUL 18:16 2016 UNTIL 07 AUG 07:00 2016. CREATED: 12 JUL 18:16 2016

L0087/16 - AERODROME FIXED WING INLINE FUEL PITS 1-4 ARE CLOSED DUE TO CONSTRUCTION FROM 20 JUN - 30 DEC 2016. FIXED WING AIRCRAFT WILL NOW UTILIZED THE ROTARY WING INLINE PITS FOR HOT REFUEL. ROTARY WING AIRCRAFT NEEDING HOT REFUEL WILL NOW UTILIZE THE EXPEDITIONARY TRUCK REFUELING POINTS ESTABLISHED ON THE RAMP NEAR THE BIRD BATH. EXPEDITIONARY TRUCK REFUELING POINTS WILL ONLY BE AVAILABLE DURING DAYLIGHT HOURS. 19 JUL 15:19 2016 UNTIL 26 AUG 14:30 2016. CREATED: 19 JUL 15:19 2016

L0086/16 - SIERRA TAXIWAY IS CLOSED SOUTH OF RUNWAY 24L/06R IN THE VICINITY OF HELO SPOTS 4 AND 5. ROTARY WING AIRCRAFT REQUESTING ARRIVAL TO HELO SPOT 5 WILL NEED TO TAXI VIA ECHO TAXIWAY PASS THE PRIMARY CALA, AND CROSS RUNWAYS 24R/24L AT THE APPROACH END BACK TO THE RAMP. 19 JUL 15:18 2016 UNTIL 07 AUG 07:00 2016. CREATED: 19 JUL 15:18 2016

L0084/16 - GOLF TAXIWAY IS CLOSED. QUEBEC TAXIWAY EAST OF HOTEL TAXIWAY IS OPEN TO F-18, AND SMALLER FIXED WING AIRCRAFT BUT PLEASE USE CAUTION DUE TO THE FUEL PIT CONSTRUCTION SITE. 14 JUL 16:32 2016 UNTIL 08 AUG 07:00 2016. CREATED: 14 JUL 16:32 2016

KNXP TWENTYNINE PALMS SELF

M0042/16 - RWY 10/28 SURFACE MARKINGS NON STD ALL INSTRUMENT APPROACHES FOR NXP ARE ONLY AUTHORIZED DURING VMC CONDITIONS. 25 MAY 21:00 2016 UNTIL 15 AUG 14:00 2016. CREATED: 25 MAY 21:00 2016

KPSP PALM SPRINGS INTL

No active NOTAMs for this location.

KNZY NORTH ISLAND NAS /HALSEY FIELD/

M0242/16 - TWY BRAVO-2 CLSD FROM PAD 11 TO INDIA TWY, 27 JUL - 15 DEC (CONSTRUCTION). PAD 9 HOVER CHECKS ONLY (NO DEPARTURES OR

ENCLOSURE (7)

7/28/2016

ARRIVALS)PAD 11 CLSD, SOUTH WASH RACK CLSD.TOWER TRANSITION NOT AVAILABLE.CAUTION, MEN AN EQUIP CROSSING TWY BRAVO-1 AT THE BRAVO-6 THROAT.TEMP TWY LINE CONNECTING TWY ALPHA TO TWY BRAVO 2 VICINITY OF BRAVO 1 TWY (TWY EDGE LIGHTS DISABLED ON EAST SIDE OF TEMP TWY LINE). 28 JUL 03:32 2016 UNTIL 25 OCT 23:59 2016. CREATED: 28 JUL 03:32 2016

M0187/16 - MH-53 AMCM OPS BEING CONDUCTED WITHIN THE AREA DEFINED AS N3234.300W11716.741, N3236.721W11716.741, N3236.721W11712.119, N3236.112W11712.119, N3236.112W11710.257, N3234.300W11710.257 AT OR BELOW 150' MSL 1600 Z (0900L) 29 JUN TO 0100Z 01 JUL (1800L 30 JUN) 1600Z (0900L) TO 0230Z (1930L) DAILY FROM 06 JUL TO 01 AUG. 29 JUN 16:38 2016 UNTIL 01 AUG 23:30 2016. CREATED: 29 JUN 16:38 2016

M0154/16 - OBST USS THEODORE ROOSEVELT MAST LIGHT OUT OF SERVICE UNTIL FURTHER NOTICE. OBSTRUCTION HIGHT 276 FT. UNTIL NOV 2016. PIER JULIET. 02 JUN 21:22 2016 UNTIL 02 AUG 23:59 2016. CREATED: 02 JUN 21:22 2016

M0134/16 - EXTENSIVE T-34C TRAFFIC OPERATING VFR OVER SAN DIEGO BAY 800-4,500' MSL AND KNRS (NOLF IMPERIAL BEACH) 4,500-8,500' MSL. DYNAMIC MANEUVERING 5,000-10,000' MSL ABEAM KNRS (OVER THE WATER). OPERATING UP TO 5 MILES OFF THE COAST AT 500-1,000' MSL FROM POINT LOMA TO DEL MAR. FROM 19 MAY 16 UNTIL 20 AUG 16. 19 MAY 15:54 2016 UNTIL 16 AUG 23:59 2016. CREATED: 19 MAY 15:54 2016

L0027/16 - QUIET HOURS FRI 29 JUL, 1800-1900Z (1100-1200L) NAB (BUDS GRADUATION-OCEANSIDE). - APPROACHES TO RWY 29 WILL BE LIMITED TO ACTUAL IFR (IN INSTRUMENT CONDITIONS) AND EMERGENCY AIRCRAFT ONLY, 1100-1200L. 26 JUL 20:28 2016 UNTIL 29 JUL 19:00 2016. CREATED: 26 JUL 20:28 2016

KNJK EL CENTRO NAF

M0087/16 - TWY E CLSD LGTD AND BARRICADED. 01 JUN 22:50 2016 UNTIL 31 JUL 13:00 2016. CREATED: 01 JUN 22:50 2016

M0086/16 - TWY D CLSD LGTD AND BARRICADED. 01 JUN 22:46 2016 UNTIL 31 JUL 13:00 2016. CREATED: 01 JUN 22:46 2016

V0003/16 - RNAV GPS RWY26 OTS. 23 MAY 16:57 2016 UNTIL 22 AUG 09:00 2016. CREATED: 23 MAY 16:57 2016

L0040/16 - RWY 08/26 ARRESTING GEAR APPROACH END RWY 08 DOWN AND UNAVAILABLE. 15 JUL 17:59 2016 UNTIL 31 AUG 13:30 2016. CREATED: 15 JUL 17:59 2016

L0036/16 - RWY 08/26 CONSTRUCTION ON NORTH AND SOUTH SIDE OF RAG ONE DURING OPERATION HOURS. 27 JUN 13:00 2016 UNTIL 01 AUG 13:00 2016. CREATED: 24 JUN 19:56 2016

L0034/16 - OBST TEMPORARY LIGHTED OBSTRUCTION NORTH OF HANGAR 9, 90 FEET AGL UNITL DECEMBER. 13 JUN 23:00 2016 UNTIL 31 AUG 07:00 2016. CREATED: 13 JUN 22:56 2016

L0027/16 - RWY 08/26 HI TACAN & TACAN RWY 26 UNUSABLE. 31 MAY 15:38 2016 UNTIL 31 JUL 13:30 2016. CREATED: 31 MAY 15:38 2016

KNYL YUMA MCAS/YUMA INTL

M0178/16 - E-28 ARRESTING GEAR LOCATED 1700FT FROM THE APPROACH END OF RUNWAY 21R IS OUT OF SERVICE. MEN AND EQUIPMENT WILL BE IN THE VICINITY. 22 JUL 19:53 2016 UNTIL 01 SEP 05:30 2016. CREATED: 22 JUL 19:54 2016

M0168/16 - COMPASS ROSE CLOSED UFN. 15 JUL 22:46 2016 UNTIL 12 OCT 14:00 2016. CREATED: 15 JUL 22:48 2016

M0163/16 - RNAV GPS 17 APPROACH MINIMUM; S-17 CAT AB 620-1 424 (500-1), CAT CD 620-1 1/4 424 (500-1 1/4), CIRCLING CAT B 700-1 487 (500-1), CAT C 800-1 1/2 587 (600-1 1/2), CAT D 800-2 587 (600-2. 11 JUL 17:19 2016 UNTIL 09 OCT 14:00 2016. CREATED: 11 JUL 17:22 2016

M0148/16 - VTOL PAD 4 CLOSED UFN. 10 JUN 22:10 2016 UNTIL 01 SEP 14:00 2016. CREATED: 10 JUN 22:11 2016

07/028 (A0314/16) - RWY 21R ALS U/S. 19 JUL 17:00 2016 UNTIL 01 SEP 23:59 2016. CREATED: 19 JUL 16:52 2016

07/027 (A0313/16) - NAV ILS RWY 21R LOC/GP U/S. 19 JUL 17:00 2016 UNTIL 01 SEP 23:59 2016. CREATED: 19 JUL 16:49 2016

07/024 (A0309/16) - RWY 03L BTN TWY H AND TWY Q CLSD TO DEP. 18 JUL 14:00 2016 UNTIL 01 SEP 14:00 2016. CREATED: 15 JUL 16:32 2016

07/022 (A0304/16) - RWY 03L CLSD TO LDG. 18 JUL 14:00 2016 UNTIL 01 SEP 14:00 2016. CREATED: 15 JUL 14:42 2016

07/021 - OBST TOWER LGT (ASR 1295464) 323930.00N1144232.80W (5.2NM W NYL) 204.1FT (90.2FT AGL) OUT OF SERVICE. 15 JUL 14:29 2016 UNTIL 30 JUL 14:28 2016. CREATED: 15 JUL 14:33 2016

ENCLOSURE (7)

07/020 (A0303/16) - RWY 21R CLSD. 18 JUL 14:00 2016 UNTIL 01 SEP 14:00 2016. CREATED: 15 JUL 14:28 2016

07/016 - OBST TOWER LGT (ASR 1012021) 324843.00N1145316.00W (17.2NM WNW NYL) 534.1FT (263.1FT AGL) OUT OF SERVICE. 11 JUL 07:47 2016 UNTIL 10 AUG 07:47 2016. CREATED: 11 JUL 07:49 2016

07/013 (A0297/16) - RWY 17 VASI U/S. 06 JUL 13:51 2016 UNTIL 03 AUG 21:00 2016 ESTIMATED. CREATED: 06 JUL 13:51 2016

L0023/16 - 28 JUL (0900T-0945T) - QUIET HOURS IN EFFECT. ALL ARRIVALS STRAIGHT IN, FULL STOPS ONLY. MILITARY DEPARTURES, OVERHEAD OR PRACTICE APPROACHES ARE NOT AUTHORIZED EXCEPT FOR SAR MISSIONS.ENGINE TURN-UPS AND HOVER LANDINGS ARE NOT AUTHORIZED. 28 JUL 16:30 2016 UNTIL 28 JUL 16:45 2016. CREATED: 25 JUL 16:30 2016

Number of NOTAMs: 34 End of Report

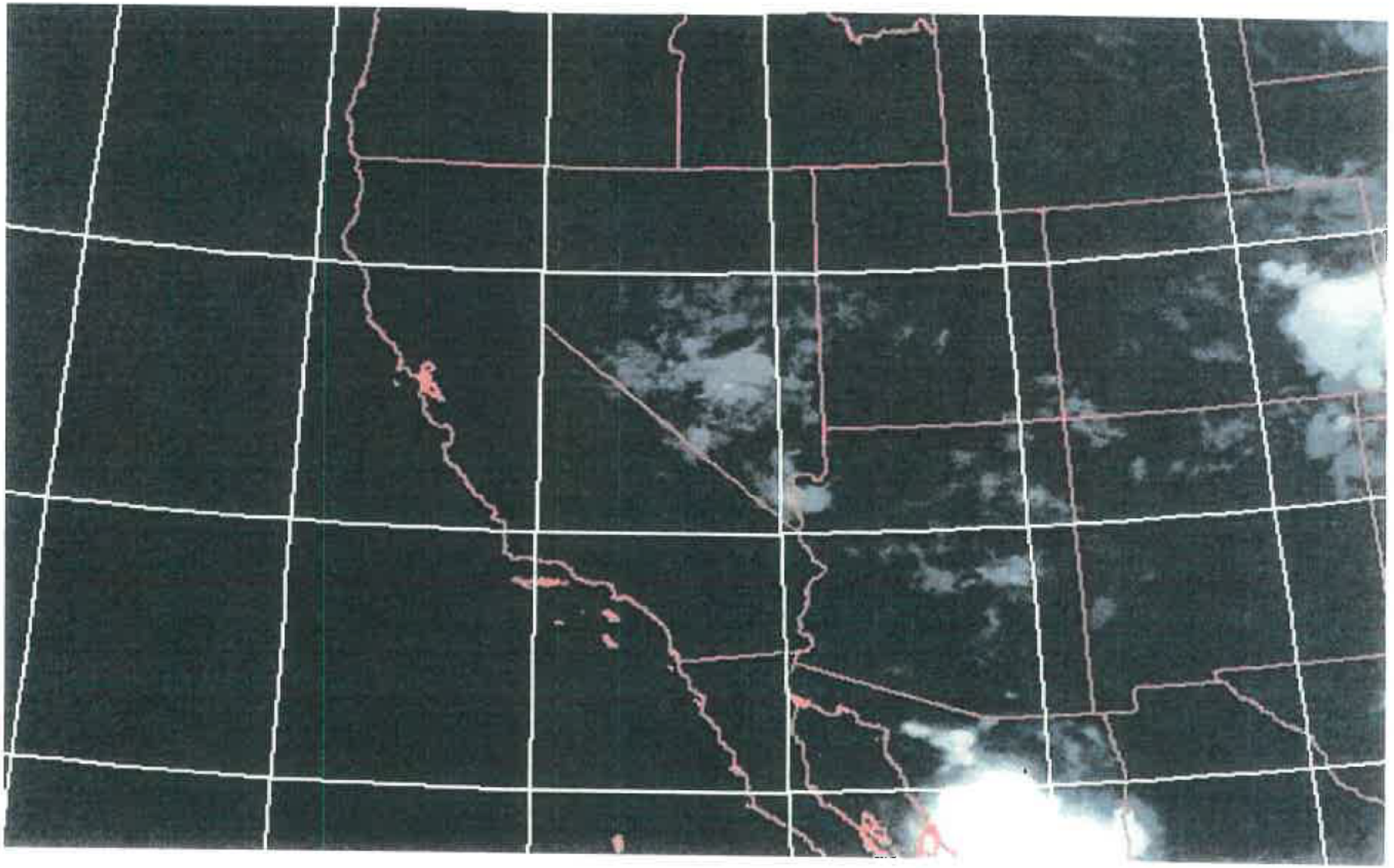
ENCLOSURE (7)

AIRCRAFT MISHAP

20160729 0005L

ENCLOSURE (7)

SATELLITE



ENCLOSURE (7)

FLIGHT LEVEL WINDS

Station ID: KNXP
Data Source: GFSG2
Latitude: 34.30 Longitude: -116.16

Station Name: TWENTYNINE PALMS EAF
Model Base Time: 29/0000
Station Elevation: 2950.98ft MSL

This is an automatically generated product for planning use only.
Please consult your local weather agency for mission execution weather support.
Valid Time: 29/0000

Altitude(ft)	Wind Dir(true)	Wind Speed(kt)	Temp(F)	Temp(C)
SFC	205	8	119	48
1000	209	9	98	36
2000	212	9	93	33
3000	211	8	87	31
4000	208	7	82	28
5000	199	6	77	25
6000	188	4	73	22
7000	156	3	68	20
8000	121	2	63	17
9000	111	4	58	14
10000	103	6	53	11
11000	109	7	48	9
12000	117	8	43	6
13000	124	9	39	3
14000	130	10	34	1
15000	132	10	29	-1
16000	126	9	25	-3
17000	121	9	20	-6
18000	106	9	17	-7
19000	90	9	14	-9
20000	76	9	11	-11
21000	72	8	9	-12
22000	68	8	6	-13
23000	70	7	3	-15
24000	88	5	0	-17
25000	107	3	-3	-19

ENCLOSURE (7)

PREVIOUS 24HR OBSERVATIONS

IDs: knxp Format: ◉ Raw ○ Decoded past 24 hours ☑ Include TAF Print Update

Data at: 0713 UTC 29 Jul 2016

KNXP 290656Z 28007KT 9SM SCT200 35/06 A2993 RMK AO2 SLP088 T03500056 $
KNXP 290556Z 30007KT 10SM CLR 36/06 A2992 RMK AO2 SLP085 T03560056 10439 20356 51021 $
KNXP 290456Z 25014KT 10SM FEW100 SCT180 SCT250 37/06 A2990 RMK AO2 SLP080 T03720056 $
KNXP 290356Z 30009KT 270V330 10SM FEW100 SCT180 SCT250 38/05 A2988 RMK AO2 SLP074 T03780050 $
KNXP 290256Z 22013KT 10SM FEW100 SCT180 SCT250 39/05 A2985 RMK AO2 SLP064 T03890050 53004 $
KNXP 290156Z 23015KT 10SM FEW100 41/05 A2984 RMK AO2 SLP060 T04110050 $
KNXP 290056Z 21013G18KT 10SM FEW110 43/05 A2983 RMK AO2 SLP056 T04280050 $
KNXP 282356Z VRB03KT 10SM FEW110 43/05 A2984 RMK AO2 SLP058 T04330050 10444 20394 56020 $
KNXP 282256Z VRB03KT 10SM FEW100 FEW150 43/04 A2986 RMK AO2 SLP062 T04330044 $
KNXP 282156Z 10SM FEW100 FEW150 43/04 A2988 RMK AO2 SLP071 T04330044 $
KNXP 282056Z 11004KT 10SM FEW100 FEW150 43/04 A2990 RMK AO2 SLP079 T04280044 58023 $
KNXP 281956Z 23003KT 10SM FEW100 FEW150 42/04 A2993 RMK AO2 SLP087 T04220039 $
KNXP 281856Z 00000KT 10SM FEW120 SCT200 41/03 A2995 RMK AO2 SLP097 T04110033 $
KNXP 281756Z 15006KT 10SM FEW100 FEW150 41/02 A2997 RMK AO2 SLP103 T04060022 10406 20311 53001 $
KNXP 281656Z 00000KT 10SM CLR 38/02 A2997 RMK AO2 SLP104 T03830017 $
KNXP 281556Z 34005KT 10SM CLR 36/02 A2997 RMK AO2 SLP103 T03560022 $
KNXP 281456Z 30008KT 10SM FEW200 34/03 A2997 RMK AO2 SLP104 T03390033 51012 $
KNXP 281356Z AUTO 28011KT 10SM CLR 32/04 A2996 RMK AO2 SLP100 T03170039 $
KNXP 281256Z AUTO 27009KT 10SM CLR 31/04 A2995 RMK AO2 SLP094 T03110039 $
KNXP 281156Z AUTO 25006KT 10SM CLR 32/04 A2993 RMK AO2 SLP090 T03170039 10361 20317 53004 $
KNXP 281056Z AUTO 00000KT 10SM CLR 33/04 A2992 RMK AO2 SLP086 T03280044 $
KNXP 280956Z 31003KT 10SM CLR 33/05 A2992 RMK AO2 SLP084 T03330050 $
KNXP 280856Z 33013G17KT 10SM CLR 34/06 A2992 RMK AO2 SLP085 T03440056 58003 $
KNXP 280756Z 34010G16KT 270V010 10SM CLR 35/07 A2993 RMK AO2 SLP088 T03500067 404330289 $

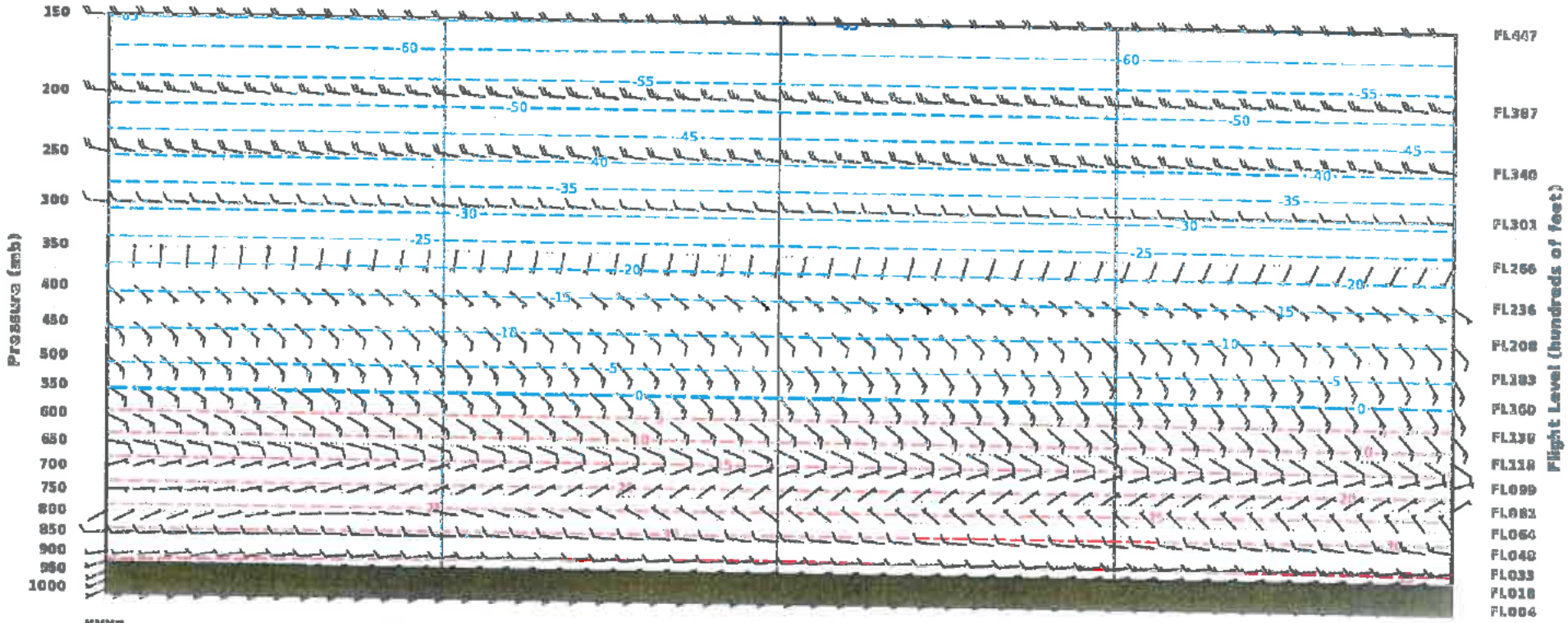
ENCLOSURE (7)

03Z TAF

TAF KNXP 2903/3003 24009KT 9999 FEW200 QNH2984INS
TEMPO 2903/2906 24014G21KT
FM291130 VRB06KT 9999 FEW100 QNH2981INS
BECMG 2923/3001 24017G24KT 9999 FEW250 QNH2983INS T29/2914Z T44/2822Z

ENCLOSURE (7)

VERTICAL CROSSECTION

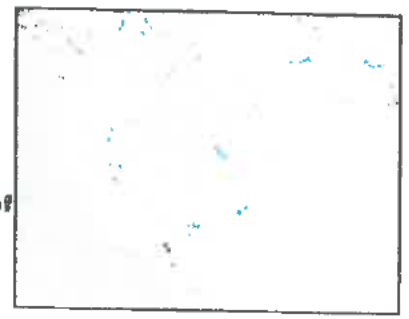


GFS Vertical Cross-Section
Model Forecast VT: 06Z Jul 29 2016

Temperature (+/-°C) Flight Level Winds (kts)*
Relative Humidity (>70%) Clouds (FEW or Greater)
Tropopause Height (FL)
Light Icing / Moderate Icing / Severe Icing
Moderate Turbulence (Hatched) / Severe Turbulence (Hatched)

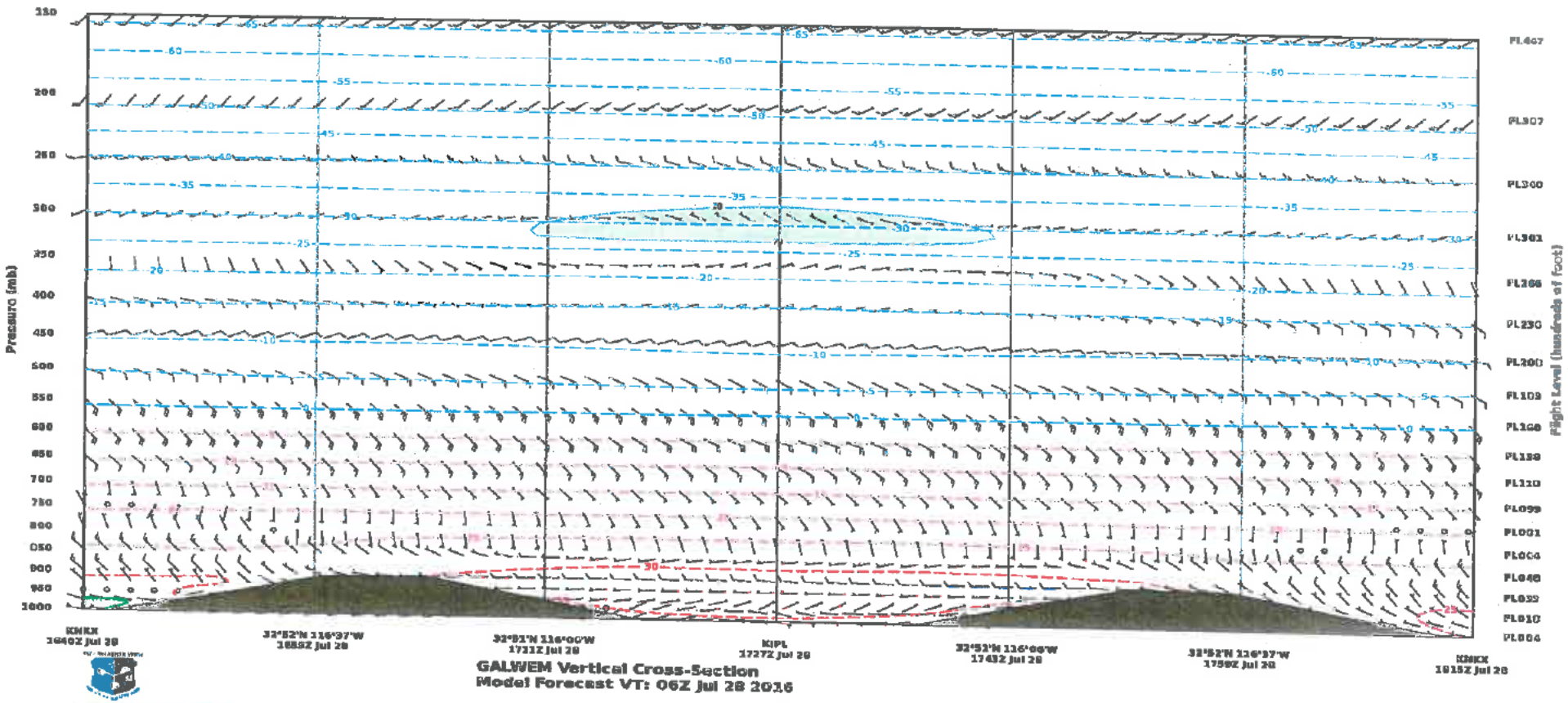
***NOTE:** Wind direction is relative to a compass (barbs to left indicate westerly wind), not relative to route of flight.

Start point is always on left side of cross-section, endpoint on right-hand side. Model terrain is drawn per route of flight.



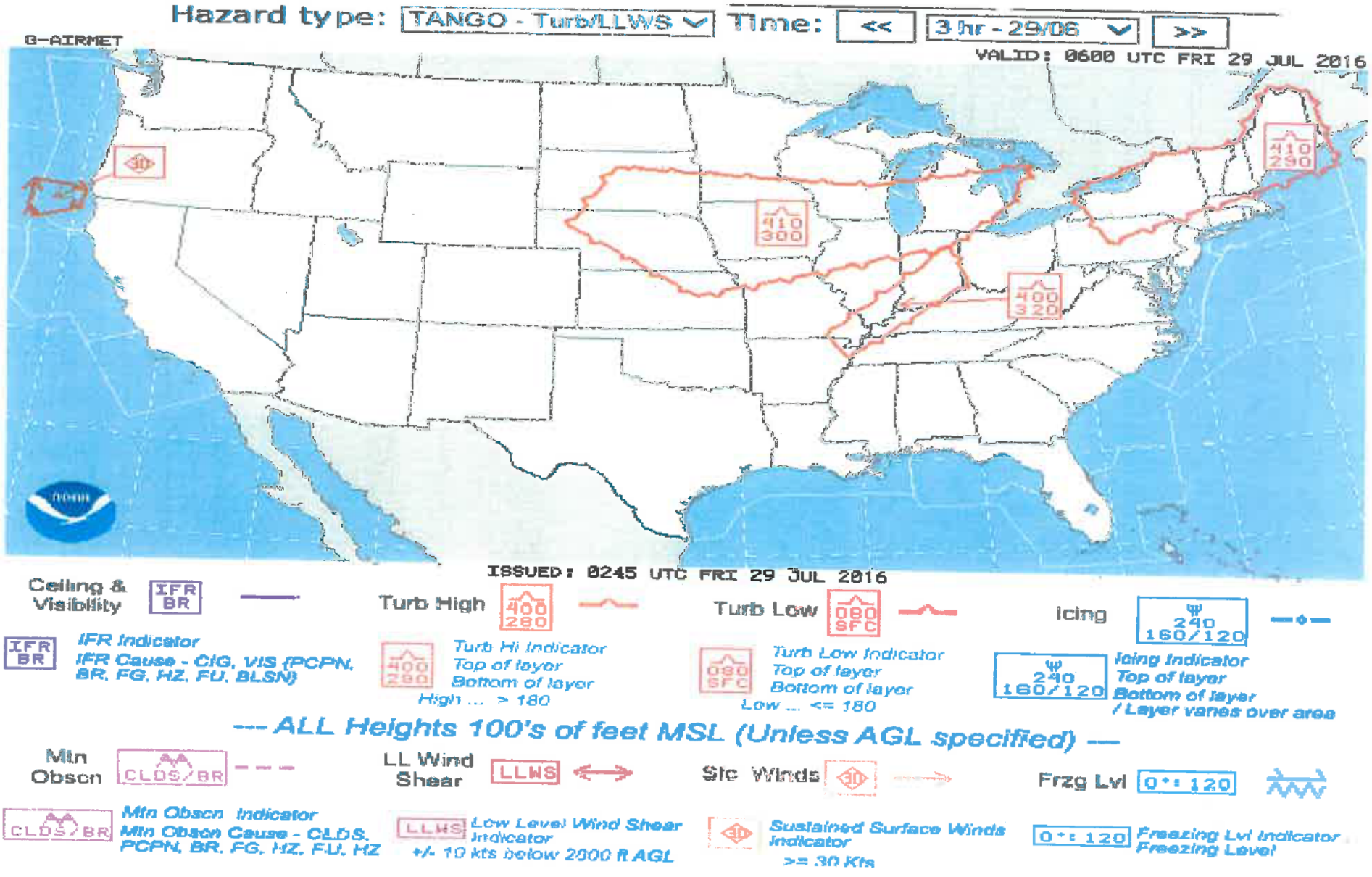
ENCLOSURE (7)

VERTICAL CROSSECTION



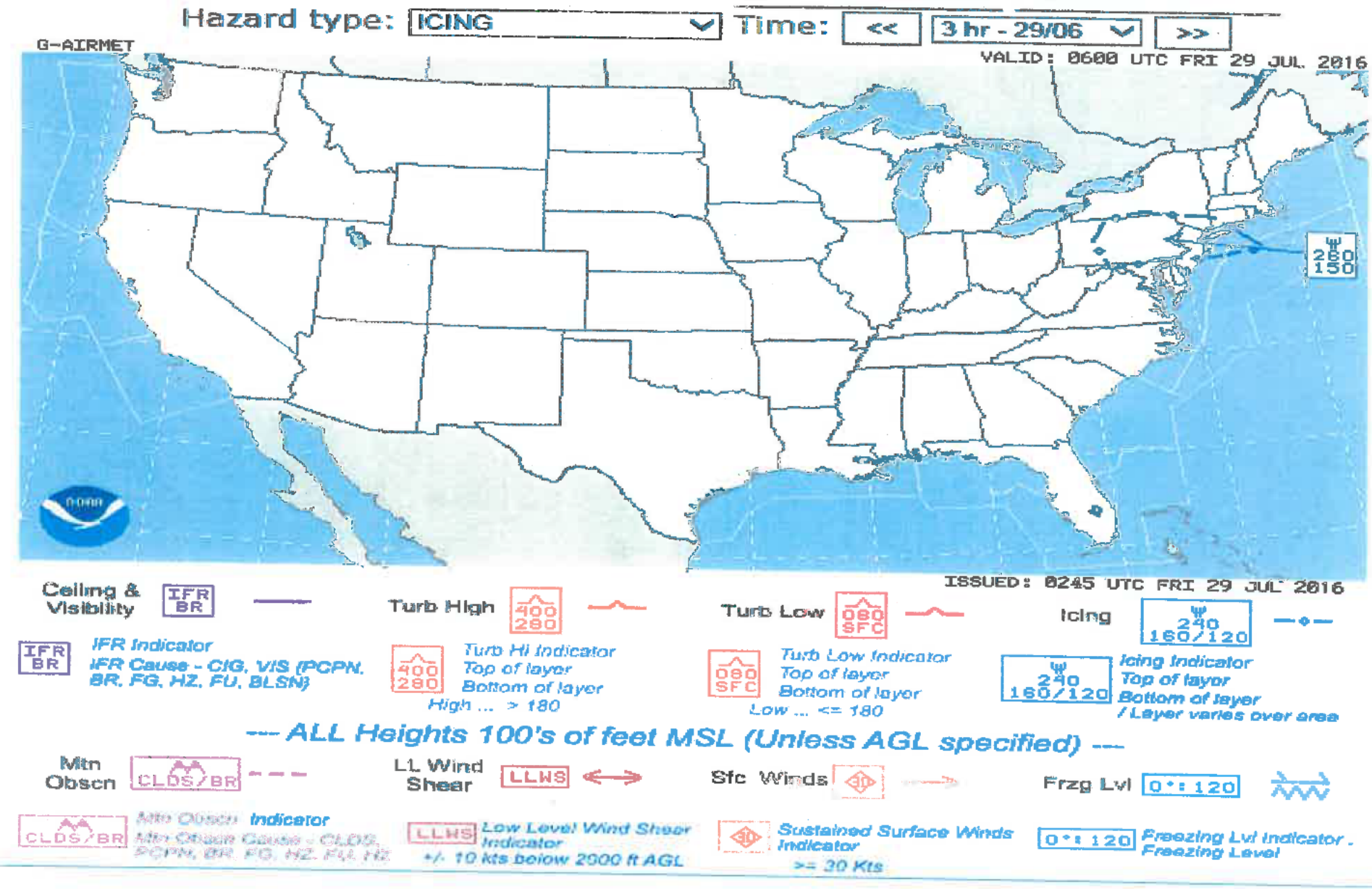
ENCLOSURE (7)

AIRMET TANGO



ENCLOSURE (7)

AIRMET ICING



ENCLOSURE (7)

MAG-11 FA-18 RISK MANAGEMENT WORKSHEET

DATE: 7/28/2016 JULIAN: 6210 SCHEDS O: [redacted]

REFER TO NOTES ON NOTES PAGE/TAB TWO

OPERATIONS SCHEDULE WRITER					1	2	3	4	5	6
AIRCREW CURRENCY / PROFICIENCY (1)										
	FLIGHT (3)	≤30 DAYS = L	>30 DAYS = M		L	L	L	L	L	
	ACM / BFM (2)(3)	<750Hrs ≤ 6 = L	>750Hrs ≤ 14 = L	>14 = NOT AUTHORIZED	N/A	N/A	N/A	N/A	N/A	
	AIR-TO-GROUND (4)*	CURRENT Y/N	Y = L		L	L	L	L	L	
	A/G NIGHT DELIVERY	NITE ≤30 DAYS Y/N	DIVE DEL (D/N) ≤30 DAYS Y/N		N/A	N/A	L	L	L	
	LAT	LAT1 Y/N	Y = L		N/A	N/A	N/A	N/A	N/A	
	CV LANDING	CURRENT Y/N	Y = L		N/A	N/A	N/A	N/A	N/A	
	AERIAL REFUELING (5)	CURRENT Y/N	Y = L		N/A	N/A	N/A	L	N/A	
MISSION TYPE										
	LOCAL AREA	Y/N	Y = L	N = ?	L	L	L	L	L	
	DACT	Y/N	Y = ?	N = NA	N/A	N/A	N/A	N/A	N/A	
	FRAG	Y/N	Y = ?	N = NA	L	L	L	L	L	
	LIVE ORDNANCE	Y/N	Y = M	N = L	M	M	N/A	N/A	N/A	
	NON-STANDARD (6)	Y/N	Y = ?	N = NA	N/A	N/A	N/A	N/A	N/A	
ADEQUATE MISSION PLANNING TIME ?		Y/N	Y = L	N= M/H	L	L	L	L	L	
ADEQUATE SCHEDULED CREW REST ?		Y/N	Y = L	N = NO GO	L	L	L	L	L	
OPERATIONS OFFICER REVIEW (L,M,H)		[SIGNATURE]			L	L	L	L	L	
DOSS REVIEW (L,M,H)		[SIGNATURE]			L	L	L	L		
COMMANDING OFFICER										
HUMAN FACTORS	L,M,H									
CO MINIMUM RISK LEVEL	L,M,H	*REF NOTES BOTTOM RIGHT CORNER.								
OPERATIONS DUTY OFFICER										
WEATHER	LAUNCH	VMC = L	IMC = ?							
	OP AREA (7)	L, ,M, H								
	RECOVERY (8)	VMC = L	IMC > MINS = ?							
	SFC WINDS IN OP AREA (9)	<25 = L	>25 OR G30 = M	>30 = H/NO GO						
SEA TEMP VS EXPOSURE TIME (10)		L, ,M, H								
FCF / CHANGE TO FLIGHT SCHEDULE (11)		Y/N	Y = ?	N = NA						
FLIGHT LEAD - WHAT IS DIFFERENT TODAY?										
SIGNIFICANT WEATHER (12)		Y/N	Y = ?	N = L	L	L	L			
ADEQUATE MISSION PLANNING TIME		Y/N	Y = L	N = ?	L	L	L			
MISSION BRIEF (13)		L, ,M, H			L	L	L			
CREW REST (14)		L, ,M, H			L	L	L			
RISK / MITIGATION FACTORS (15)		CHECKED Y/N			Y	Y	Y			
OVERALL FLIGHT LEAD ASSESSMENT BASED ON ALL OF THE ABOVE FACTORS) L,M,H					M	M	L			
FLIGHT LEAD INITIALS					[redacted]					

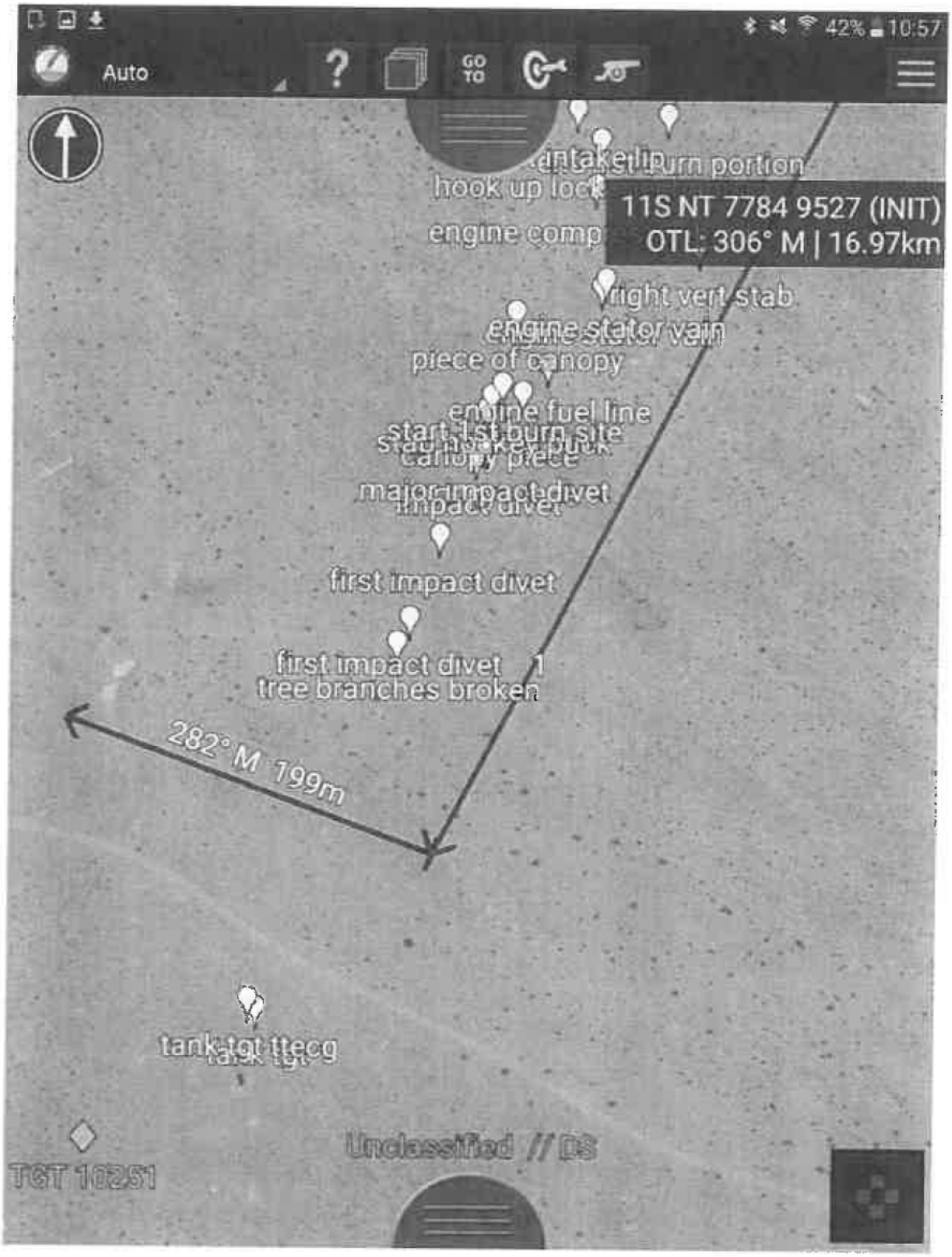
OPERATIONS OFFICER / DOSS COMMENTS:

FLIGHT LEAD COMMENTS (CONTINUE ON REVERSE IF REQUIRED):
Evt 1
Evt 2
Evt 3
Evt 4
Evt 5
Evt 6

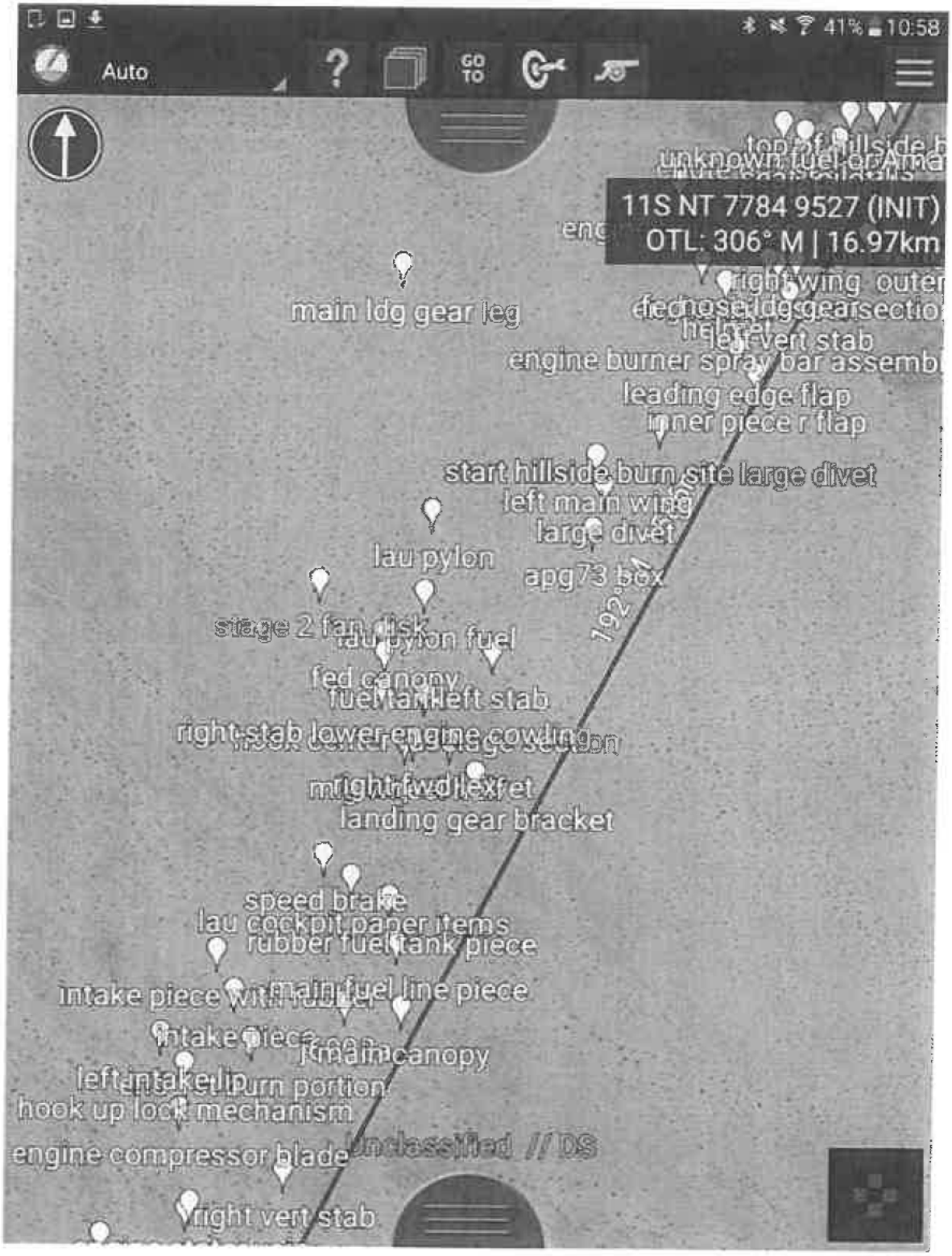
COMMANDING OFFICER COMMENTS:

Notice:
LOW (L) - THE POTENTIAL HAZARD SEVERITY IS NEGLIGABLE. OPERATIONS IAW 3710, SOP AND ALL AIRCREW CURRENT.
MEDIUM (M) - THE POTENTIAL HAZARD SEVERITY IS MODERATE. OPERATIONS IAW 3710 AND/OR SOP, SAFETY HAZARDS DUE TO WEATHER, OR UNIQUE OPERATIONS REQUIRING ATTENTION OF THE FLT LD.
HIGH(H) - HAZARD SEVERITY IS CRITICAL. OPERATIONS OUTSIDE 3710 AND/OR SOP, SAFETY HAZARDS DUE TO WEATHER, OR UNIQUE OPERATIONS REQUIRING ATTENTION / APPROVAL OF THE MAG CO.
EXTREMELY HIGH (XH) - HAZARD SEVERITY IS CATASTROPHIC. REQUIRES WING COMMANDER APPROVAL.

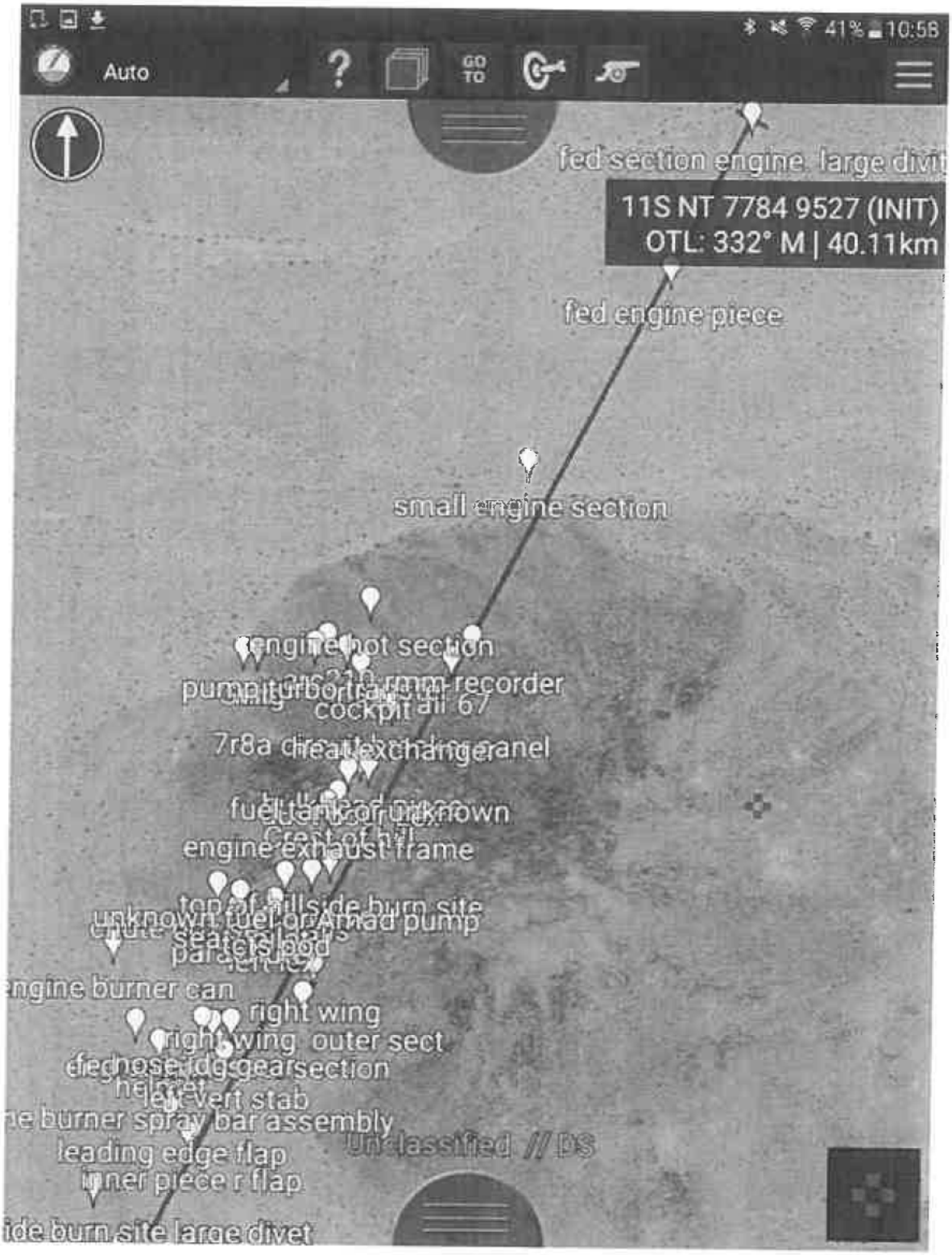
ENCLOSURE (8)



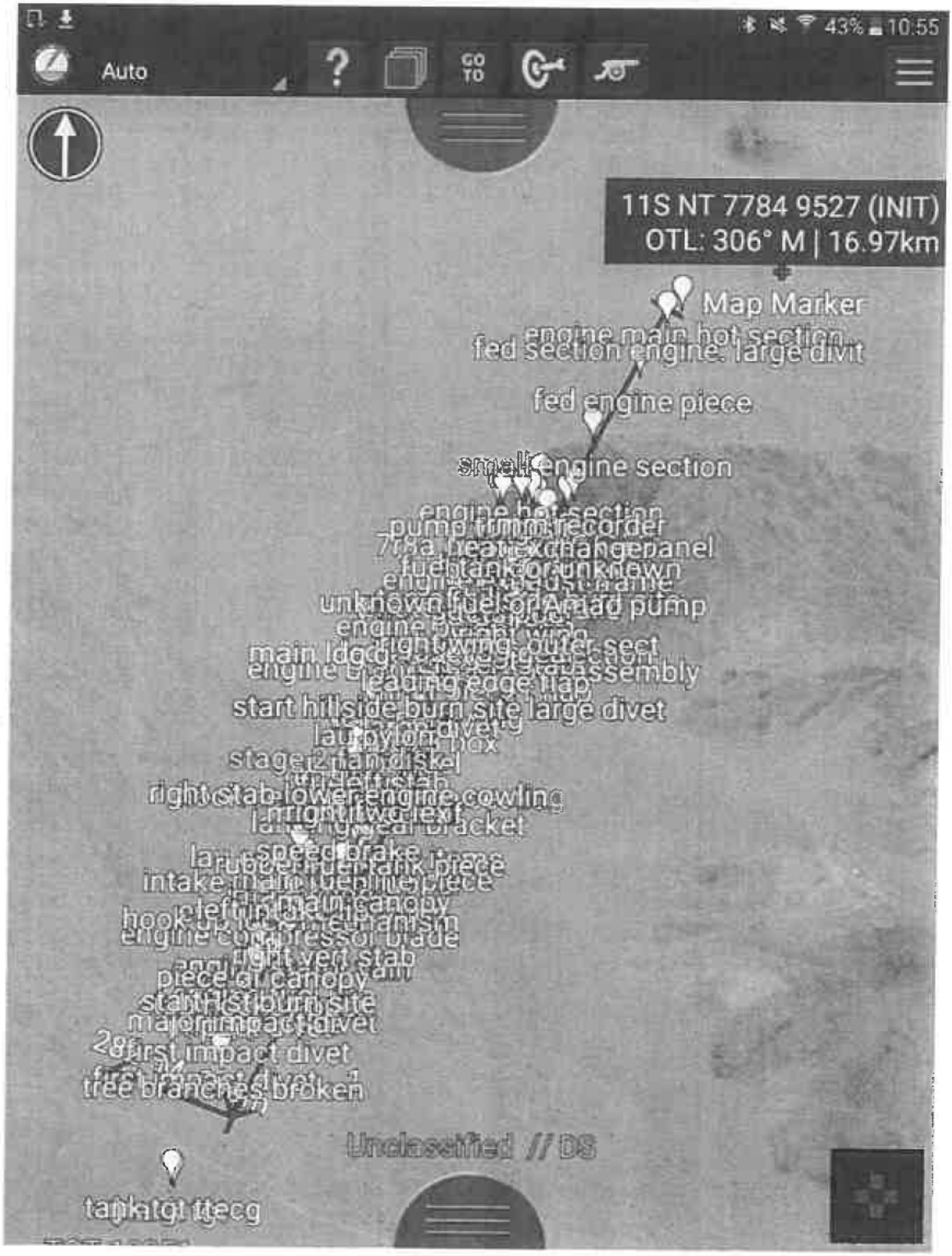
ENCLOSURE (11)


41% 10:58
Auto
GO TO
11S NT 7784 9527 (INIT)
OTL: 306° M | 16.97km
main ldg gear leg
engine burner spray bar assembl
leading edge flap
inner piece r flap
start hillside burn site large divet
left main wing
large divet
lau pylon
apg73 box
stage 2 fan disk
lau pylon fuel
fuel tank left stab
right stab lower engine cowling
landing gear bracket
speed brake
lau cockpit paper items
rubber fuel tank piece
main fuel line piece
main canopy
hook up lock mechanism
engine compressor blade
right vert stab
Unclassified // DS

ENCLOSURE (||)


41% 10:56
Auto
GO TO
fed section engine large divit
11S NT 7784 9527 (INIT)
OTL: 332° M | 40.11km
fed engine piece
small engine section
engine hot section
pump turbo
cockpit
engine exhaust frame
unknown fuel or Amad pump
engine burner can
right wing
right wing outer sect
leading edge flap
Unclassified // DS

ENCLOSURE (1 /)



ENCLOSURE (11)

MCTFS BASIC INDIVIDUAL RECORD 09/26/2016
12:27:53

EDIPI: 1280046856 NAME: NORTON, RICHARD S
RUC: 00000 COMPANY CODE: PRES-GRADE: O4 RECSTAT: E COMP CODE:
PLT CODE: TRNGRP: R-RECSTAT: RCOMP-CODE:

---------- CONTRACT INFORMATION ----------

EAS: 20160728 COMPONENT CODE:
EOS: 20130324 ECC: 20160728 RESERVE COMPONENT CODE:
RESERVE ECC: 00000000 DATE ACCEPTED FIRST COMMISSION: 20050325
DATE OF ENL/ACCEPT: 20050325 DOD TRNGRP: TRAINING GRP:
AFADB: 00000000 PEBD: 20050116 MANDATORY DRILL START: 20050116 END: 00000000
DATE OF ORIG ENTRY: 20041006 DATE OF BASIC ELIG: 00000000MDP EXT MO: 00
LENGTH CURR ENL: 0 YRS PEF: 00 NONE
LENGTH CURR ENL: 00 MOS BONUS PEF:
LENGTH CURR EXT: 00 MONTHS COLLEGE FUND PEF:
NO EXT CURR ENL: 00 MGIB-SR STATUS:
TOTAL MONTHS EXT: 00 MONTHS ACTIVE DUTY MGIB STATUS: 5 OVEBP CODE: 3
EFF DTE CURR EXT: 00000000
MONTHS LAST ENL EXT: 00
TIME LOST CURR ENL: 0000 DAYS DESIG MIL PILOT: 20080208
SOURCE OF INT ENTRY MIL SER: 6 YEAR OBL START: 00000000
SOURCE OF ENTRY: 1C1C OCAN CODE: OCAN EFF DATE: 00000000

POST 911 GIBILL ELIG BEGIN DT: 00000000 POST 911 GIBILL TR EDU BENE CD: 0
POST 911 GIBILL BENEFTS TR DT: 00000000 POST 911 GIBILL TR EDU OBL DT: 00000000

---------- SERVICE INFORMATION ----------

PRES GRADE: O4 DOR: 20150701 ACDU RUC: 00000 MCC:
GRADE: DTE: 00000000 RESERVE RUC: MOB MCC:
FORMER RES RUC: FORMER RES MCC:
PROM RESTR STAT CD: 0 PROM RESTR TERM DTE: 00000000
PME COMPLETE FLAG: 1TAD RUC: 00000 MCC:
PME COMPLETE EFFECTIVE DATE: 00000000 2TAD RUC: 00000 MCC:
WORK STATION: 000
BILLET DESCRIPTION:
ANNIVERSARY DATE: 00000000
PEN: 0206114M RCN: FAPRUC: 00000 RESERVE MCC:
DCTB: 20080302 FORMER RUC: 01232 FUTURE RUC:
DATE JOINED PRES UNIT: 20151119 IND LOC CODE:
DATE JOINED SMCR: 00000000

RCLF REGION CODE: RCLF REGION ASSIGN DATE: 00000000
RCLF REGION DESCRIPTION:
GEO LOC CODE: RCLF COMPLETE FLAG:
GEO LOC DCTB: 000000
COMBAT SERV CODE: TT ROTATION TOUR DATE: 00000000
LAST COMBAT TOUR: 00000000 OVERSEAS CONTROL DATE: 20130910
OFF REMOVAL DATE: 00000000 LAST PHYS EXAM: 00000000
RESERVE UNIT JOIN DATE: 00000000 PHA DATE: 00000000
LAST SEP/DISCH DATE: 00000000
REASON: 8211 DEATH INSIDE US, NONHOSTILE

PMOS: 7523 ADMOS1: 0570 ADMOS6: ADMOS11:
BMOS: 7523 ADMOS2: 7502 ADMOS7: ADMOS12:
SMOS: 0000 ADMOS3: 7577 ADMOS8:
DMOS: ADMOS4: ADMOS9:
JMOS ED: 00000000 ADMOS5: ADMOS10:
LAW ENFORCE/COUNTERINTEL ID: ISSUE DATE: 00000000

ENCLOSURE (13)

---------- PERSONAL INFORMATION ----------

[redacted]

[redacted]

RESERVE BILLET IDENT CODE:

ENCLOSURE (13)

FAP BILLET IDENT CODE:

FORMER BILLET IDENT CODE: M0123200042

---------- DUTY STATUS INFORMATION ----------

D STATUS:
DUTY LIMIT: 0/NONE
DUTY LIMIT ED: 20050116
STR CAT: 4/TAD > 30 DAYS NOT AS A STUDENT
STR CAT ED: 20160306
COMBAT CAS:
COMBAT CAS ED: 00000000

---------- RETIREMENT INFORMATION ----------

DATE 1ST ELIG RET (RES): 00000000
RET/FMCR DATE: 00000000
RET/FMCR FLAG:
RET/FMCR STAT:

---------- CG/CO/OIC INFFORMATION ----------

SEQ	KILL DATE	CODE	DESC	FROM DATE	TO DATE

*** THERE ARE NO REMARKS FOR INPUT SSN OR EDIPI ***

I CERTIFY THAT MY ELIGIBILITY FOR ENTITLEMENT TO BASIC ALLOWANCE FOR HOUSING HAS/HAS NOT CHANGED SINCE MY LAST CERTIFICATION/UPDATE.

SIGNATURE: _____ DATE: _____ DEPN ZIP IF APPLICABLE _____

BIR CERTIFICATION SIGNATURE REQUIRED FOR BOTH ACTIVE DUTY AND RESERVE MARINES:

MARINE:_____DATE:_____ AUDITOR:_____UD NUM:____

ENCLOSURE (13)

MEDICAL RECOMMENDATION FOR FLYING OR SPECIAL OPERATIONAL DUTY

(Read Privacy Act Statement and Instructions on back before completing form.)

1. TO:	2. FROM:	3. DATE (YYYYMMDD)
CO VMFA 232	[redacted]	20151117

4. MEMBER NAME (Last, First, Middle Initial)	5. IDENTIFICATION NUMBER	6. GRADE	7. DATE OF BIRTH (YYYYMMDD)
Norton, Richard S	[redacted]	O4	[redacted]

8. ORGANIZATION	9. TYPE OF DUTY	10. FLIGHT PHYSICAL DATE (YYYYMMDD) (If applicable)
VMFA 232	AVIATION	07082015

11. UP: THE ABOVE INDIVIDUAL HAS BEEN FOUND QUALIFIED BY MEDICAL AUTHORITY.

a. X one:

[X] CLEARED AFTER (X): [ ] Temporary medical disqualification [ ] Waiver recommended (Not USAF) [ ] Aircraft mishap
[X] Reporting to new duty station [ ] Waiver granted [ ] Other (See remarks)
[ ] CLEARED AFTER FLIGHT DUTY MEDICAL EXAMINATION

b. EFFECTIVE DATE (YYYYMMDD)	c. EXPIRATION DATE (YYYYMMDD)
20151117	20160630

12. DOWN: THE ABOVE INDIVIDUAL HAS BEEN FOUND DISQUALIFIED BY MEDICAL AUTHORITY.

a. X one:

[ ] TEMPORARY DISQUALIFICATION DUE TO (X): [ ] Illness or Injury [ ] Aircraft mishap [ ] Other (See remarks)
MAY PARTICIPATE IN (X): [ ] Simulator duties [ ] Ground based flight line duties [ ] Other (See remarks)
[ ] PERMANENT DISQUALIFICATION

b. EFFECTIVE DATE (YYYYMMDD)	c. ESTIMATED DURATION OF GROUNDING

13. REMARKS/LIMITATIONS

[ ] VISION CORRECTION DEVICES REQUIRED IN THE PERFORMANCE OF FLIGHT DUTIES.
[ ] MUST CARRY EXTRA SPECTACLES.

Admin UpChit. Has waiver for Lt ulnar neuropathy q 5 year submission. Up to date flight status- will reassess waiver at next flight physical, this is likely a resolved issue.

14. (X one): [X] **FLIGHT SURGEON** [ ] **OTHER** *(Countersignature required for Air Force and Navy upslip)*

a. TYPED NAME (Last, First, Middle Initial)	b. GRADE	c. PROVIDER SIGNATURE	d. DATE SIGNED (YYYYMMDD)
[redacted]	O3	[redacted]	20151117
e. TYPED NAME (Last, First, Middle Initial)	**f. GRADE**	**g. FLIGHT SURGEON COUNTERSIGNATURE**	**h. DATE SIGNED (YYYYMMDD)**

15. MEMBER CERTIFICATION

a. I certify that I understand the above recommendations and that I:	b. AIRCREW MEMBER SIGNATURE	c. DATE SIGNED (YYYYMMDD)
[ ] MAY [ ] MAY NOT perform flight duties.		

16. ACTION TAKEN BY COMMANDER *(Not required for Air Force and Navy)* [ ] APPROVE [ ] DISAPPROVE

a. TYPED NAME (Last, First, Middle Initial)	b. TITLE	c. SIGNATURE	d. DATE SIGNED (YYYYMMDD)

DD FORM 2992, JAN 2015 REPLACES DA FORM 4186, AF FORM 1042, AND NAVMED FORMS 6410/1 AND 6410/2, WHICH ARE OBSOLETE. Adobe Designer 9.0

ENCLOSURE (14)

MPT&E CoE based upon the needs of the commands noted above, utilizing the procedures established by the SARMM, and employing the technical advice of BUMED.

(3) Training Analysis – The RSSMM shall monitor the attrition, rollback, and mishap trends of the RSSTP.

(4) Site Evaluations – The RSSMM shall conduct annual evaluations of CNO-approved training sites at HSC-3; Helicopter Sea Combat Wing U.S. Atlantic Fleet (HSCWINGLANT); Fleet Training Center, San Diego; and NAVAVSCOLSCOM, Pensacola.

8.7.1 Definitions

The following terms contained in the glossary, appendix N, are relevant: competent authority, designations, DIFCREW, enlisted crewmember (U.S. Marine Corps), naval aircrewman (NAC).

8.7.2 Training Requirements

RSSTP includes initial and refresher training programs. All category I aviation rescue swimmer school training shall be conducted at NASC, NAS Pensacola. Category II aviation RSS training shall be conducted at HSC-3, NAS North Island and COMHSWINGLANT, NAS Jacksonville.

8.7.3 Prerequisites

a. Initial Training – Satisfactory completion of Naval Aircrew Candidate School (NACCS) within the preceding 6 months or be designated an NAC. Must have a current flight physical, NAVMED 6410/2, and be current in all aircrew indoctrination NASTP training in accordance with the provisions of this chapter.

b. Refresher Training – Be a graduate of a CNO-approved rescue swimmer school. Must be designated an NAC, have a current flight physical and NAVMED 6410/2, and be current in all aircrew NASTP training in accordance with the provisions of this chapter.

8.8 AVIATION PHYSICAL EXAMINATIONS AND QUALIFICATIONS

8.8.1 General Requirements

Specific guidance to be followed for aviation physical exams, evaluations and qualifications is provided in MANMED chapter 15. Physical standards, as established by BUMED, are to be met as a continuing requirement, not solely at the time of the required physical examination. Physical qualification as certified by an appropriate physical examination is a prerequisite for flight for all aircrew personnel. Commanding officers shall suspend from flight duties all aircrew personnel who have not met annual flight physical qualifications. It is preferred that the physical be accomplished starting the first day of the month preceding the birth month. Flight personnel who have not initiated an aviation physical examination by the last day of their birth month shall be considered not to have met annual flight physical qualifications. Flight personnel delinquent in receiving an aviation physical examination shall not be scheduled to fly unless a waiver has been

ENCLOSURE (15)

granted by BUPERS/CMC. UAS flightcrew shall follow provisions of this section. Specific flight physical requirements for UAS flightcrew can be found in MANMED.

Note

Commanding officers may extend the expiration date of a NAVMED Form 6410/2 that would otherwise expire during the last 90 days of a long deployment in consultation with flight medicine or with NAMI if local medicine support is not available. When possible, NATOPS aeromedical qualifications that are due to expire prior to the last 90 days of a long deployment should be renewed prior to deployment. The expiration date for the extension shall not be later than 30 days after return from deployment. For aircrew with annual submission requirements, a request for extension shall be forwarded to NAMI for coordination and review 30 days or more before the NAVMED 6410/2 is due to expire.

8.8.2 Required Evaluations

FSs shall keep flight personnel under surveillance so that physical illness, fatigue, and emotional upset will be readily detected. Commanding officers shall establish administrative procedures to assure that all flight personnel report to an FS whenever their fitness to fly is questionable. FSs shall conduct interviews and/or physical examinations of aircrew personnel and make recommendations to the member's commanding officer as follows.

Note

Commanding officers and FSs shall comply with applicable directives pertaining to mental health evaluations of Service members (see reference (bg)). Individuals who fall under reference (bh) may require additional administrative procedures in conjunction with evaluation. Commanding officers are encouraged to consult with local FSs and legal officers.

8.8.2.1 Periodic Flight Physical Examination

All aircrew and personnel assigned to duty involving flight (also includes those DIFDEN) shall be evaluated annually. Exams should be conducted within the interval from the first day of the month preceding their birth month until the last day of their birth month, however, examinations may be scheduled up to 3 months prior to expiration to accommodate specialty clinic and other scheduling issues. To accommodate special circumstances such as deployment requirements, permanent change of station, temporary duty, or retirement, this window may be extended up to a maximum of 6 months with written approval by the member's commanding officer. BUMED 6410/2s issued in association with an annual or periodic examination expire on the last day of the aviator's birth month of the following year regardless of when the previous required exam was completed. BUMED 6410/2s may be issued for a shorter period to ensure compliance with provisions for close follow-up. A BUMED 6410/2 issued by a local board of flight surgeons (LBFS) is limited to 90 days from the date of the LBFS.

ENCLOSURE (15)

[redacted]

From: [redacted]
Sent: Tuesday, August 16, 2016 11:46 AM
To: [redacted]
Cc:
Subject: RE: Mishap Investigation
Signed By: [redacted]

Sir,

Unfortunately, his up chit was expired as far as I can tell. There was word that he had done his flight physical while in WTI, however I do not see record of that in the electronic or paper health record. There is a confusing up chit in his medical record that looks like it may have been dated to expire in July from Jun2015, but this is not allowable by instruction and there is a more recent up chit from me for his admin up chit (when he joined the squadron) that expires the end of June.

As far as any medical reason why he would not have an up chit- from looking over his local and electronic records and then looking at insurance charges for treatment out in town it doesn't appear he had any recent medical appointments/treatments. Also, speaking to those around him and speaking to him directly no medical complaints that I know of. I don't believe he had any issues or illnesses that were otherwise disqualifying. I believe he just let the up chit expire or if he had a renewed one from WTI it did not make it into the appropriate records. Hope this helps.

v/r,

[redacted]

-----Original Message-----
From: [redacted]
Sent: Tuesday, August 16, 2016 9:53 AM
To: [redacted]
Cc:
Subject: RE: Mishap Investigation

No worries.

I will take the Fatigue analysis when you get it.

On to the other question that I have no idea how to address because this may truly dip into privilege (regarding you) and thus the Cc to [redacted] so he can arbitrate. His up-chit was expired. Beyond a case of pilot dumb shits (just forgot) was there some other medical reason why he would not have a current up chit. If you can't answer that's fine, I just need a Doc at the clinic who can dive into his record for me.

ENCLOSURE (16)

-----Original Message-----
From: [redacted]
Sent: Tuesday, August 16, 2016 9:11 AM
To: [redacted]
Subject: Mishap Investigation

Sir,

Good morning. My name is [redacted], I am the flight surgeon on the mishap investigation. [redacted] asked me about sending you the 72 hour history for Maj Norton, unfortunately they were derived from privileged statements so I will not be able to get those to you. If it is helpful, I can get the fatigue analysis to you which will be a percentage of effectiveness giving us an idea if he was fatigued or not. It is calculated from a fatigue modeling software called FAST by NovaSci. I should have it within the week; just waiting on product licensing through the IT department.

He had also mentioned the Toxicology/Autopsy reports. Those are still pending. Should be forthcoming but usually take 2 weeks or so given lab analysis and then they physically mail the report in most cases. Once I have that I will provide it to you.

Let me know if I can provide anything else to be helpful.

Very respectfully,

[redacted]

ENCLOSURE (16)

TOPS FLIGHT PERSONNEL TRAINING/QUALIFICATION JACKET
OPNAV 3760/32C (4-81) SN 0107-LF-736-2140

SECTION IIA – FLIGHT PERSONNEL DESIGNATION RECORD

NAME (Last, first, middle initial): Norton, Richard S.

SSN: [redacted]

DATE	DESIGNATION	MODEL	UNIT	PROMULGATION BY	VERIFIED
08 Feb 08	Naval Aviator	T-45	VT-22	[redacted]	
10 Nov 09	ODO	F/A-18	VMFA(AW)-225		
23 JUN 11	SEC LD	F/A-18	VMFA(AW)-225		
18 MAR 13	NATOPS INSTRUCTOR	F/A-18	VMFA(AW)-225		
19 MAR 13	DIV LEAD	F/A-18	225		
15 SEP 13	SFTI	FA-18	NSAWC		
3 MAR 14	FCF	F/A-18	225		
1 MAR	MISSION CMNDR	F/A-18	VMFA-232		
MAR	LAT(I)	F/A-18	VMFA-232		

ENCLOSURE (17)

★ U.S. GOVERNMENT PRINTING OFFICE: 1996 - 704-002/42215

UNITED STATES MARINE CORPS
MARINE FIGHTER ATTACK SQUADRON 232
MARINE AIRCRAFT GROUP 11
3D MARINE AIRCRAFT WING
MARINE CORPS AIR STATION MIRAMAR
PO BOX 452055
SAN DIEGO, CA 92145-2055

IN REPLY REFER TO:
3710
S-3
20 May 16

From: Commanding Officer, Marine Fighter Attack Squadron 232
To: Major Richard S. Norton 1280046856/7523 USMC

Subj: DESIGNATIONS AND QUALIFICATIONS LETTER

Ref: (a) OPNAVINST 3710.7
(b) NAVMC Dir 3500.14
(c) NAVMC Dir 3500.50
(d) FA-18 Course Catalog

1. IAW the references, and having shown the required ability, flight leadership, and maturity you are hereby designated as:

DESIGNATION OR QUALIFICATION	DATES
Operations Duty Officer	10 Nov 09
Air Combat Maneuvering Qualified	13 Apr 10
Night Systems Qualified (High)	25 May 10
Low Altitude Tactics Qualified	11 Apr 11
Section Leader	23 Jun 11
Forward Air Controller(Airborne)	20 Feb 13
Division Leader	19 Mar 13
Strike Fighter Tactics Instructor (TOPGUN)	20 Sep 13
Post Maintenance Check Flight Pilot	3 Mar 14
Fighter Attack Instructor	16 Feb 16
Mission Commander	1 Mar 16
Low Altitude Tactics Instructor	2 Mar 16
Night Systems (High) Instructor	25 Apr 16
Weapons and Tactics Instructor (WTI)	25 Apr 16

[redacted]

Copy to:
NATOPS Jacket
PTO
SNO

ENCLOSURE (17)

UNITED STATES MARINE CORPS
MARINE FIGHTER ATTACK SQUADRON 232
MARINE AIRCRAFT GROUP 11
3D MARINE AIRCRAFT WING, MARFORPAC
P.O. BOX 452055
MCAS MIRAMAR, SAN DIEGO, CA 92145-2055

IN REPLY REFER TO:
3710
S-3
3 Mar 16

From: Commanding Officer, Marine Fighter Attack Squadron 232
To: Major Richard S. Norton 1280046856/7523 USMC

Subj: DESIGNATIONS AND QUALIFICATIONS LETTER

Ref: (a) OPNAVINST 3710.7
(b) NAVMC Dir 3500.14
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Strike Fighter Tactics Instructor	20 Sep 13
Post Maintenance Check Flight Pilot	3 Mar 14
Fighter Attack Instructor	16 Feb 16
Mission Commander	1 Mar 16
Low Altitude Tactics Instructor	2 Mar 16

[redacted]

Copy to:
NATOPS Jacket
PTO
SNO

ENCLOSURE (17)

NATOPS FLIGHT PERSONNEL TRAINING/QUALIFICATION JACKET
OPNAV 3760/32F (4-81) SN 0107-LF-736-2170

SECTION IIIB – OPERATIONAL PHYSIOLOGY & SURVIVAL TRAINING

NAME *(Last, first, middle initial)*	RANK/RATE	SSN

COURSE CATEGORY	TYPE OF TRAINING: AVIATION PHYSIOLOGY			EMERGENCY EGRESS			WATER SURVIVAL			LAND SURVIVAL, DWEST, SERE		
	DATE	GRADE	UNIT	DATE	GRADE	UNIT	DATE	GRADE	UNIT	DATE	GRADE	UNIT
A. A. OF EJECTION SSU 5/6/17 G-TIP	2 JUN 16	Q	NAMI									
	SIGNATURE [redacted]			SIGNATURE			SIGNATURE			SIGNATURE		
SPAT D, CSEL, HYPOXIA	1 JUN 16	Q	NAMI									
	[redacted]			SIGNATURE			SIGNATURE			SIGNATURE		
	[redacted]			DATE / GRADE / UNIT			DATE / GRADE / UNIT			DATE / GRADE / UNIT		
	SIGNATURE			SIGNATURE			SIGNATURE			SIGNATURE		
	DATE / GRADE / UNIT			DATE / GRADE / UNIT			DATE / GRADE / UNIT			DATE / GRADE / UNIT		
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	DATE / GRADE / UNIT			DATE / GRADE / UNIT			DATE / GRADE / UNIT			DATE / GRADE / UNIT		
	SIGNATURE			SIGNATURE			SIGNATURE			SIGNATURE		

TRAINING ACTIVITIES

1. Pensacola, FL	8. Barbers Point, HI	15. Brunswick, ME
2. Miramar, CA	9. Cecil Field, FL	16. FASOTRAGRUPAC
3. Norfolk, VA	10. Cherry Point, NC	17. FASOTRAGRULANT
4. Corpus Christi, TX	11. Whidbey Island, WA	18. MCAS New River, NC
5. Lemoore, CA	12. Beaufort, SC	19. Okinawa
6. El Toro, CA	13. Point Mugu, CA	20. Other (List)
7. Jacksonville, FL	14. Patuxent River, MD	21.

☆ U.S. Government Printing Office: 1982 583-004/1073

ENCLOSURE (17)

\TOPS FLIGHT PERSONNEL TRAINING/QUALIFICATION JACKET
ONAV 3760/32F (4-81) SN 0107-LF-736-2170

SECTION IIIB – OPERATIONAL PHYSIOLOGY & SURVIVAL TRAINING

NAME (Last, first, middle initial)	RANK/RATE	SSN
NORTON, RICHARD		

COURSE CATEGORY	TYPE OF TRAINING											
	AVIATION PHYSIOLOGY			EMERGENCY EGRESS			WATER SURVIVAL			LAND SURVIVAL, DWEST, SERE		
HYPOXIA GTIP	DATE 13JUN13	GRADE Q	UNIT MAG 11	DATE	GRADE	UNIT	DATE	GRADE	UNIT	DATE	GRADE	UNIT
	[redacted]			SIGNATURE			SIGNATURE			SIGNATURE		
AA OF EJECTION ANNUAL EGRESS SJU 5,6,17 NVG DON DOFF	DATE	GRADE	UNIT	DATE 13JUN13	GRADE Q	UNIT MAG 11	DATE	GRADE	UNIT	DATE	GRADE	UNIT
	SIGNATURE			[redacted]			SIGNATURE			SIGNATURE		
CSEL W/LAND NAV	DATE 18SEP13	GRADE Q	UNIT 225	DATE	GRADE	UNIT	DATE	GRADE	UNIT	DATE	GRADE	UNIT
	[redacted]			SIGNATURE			SIGNATURE			SIGNATURE		
SPATIAL D/HYPOXIA GTIP/CSEL/NVG/EGRESS SJU 5/6/17 NVG	DATE	GRADE	UNIT	DATE	GRADE	UNIT	DATE	GRADE	UNIT	DATE	GRADE	UNIT
	[redacted]			SIGNATURE			SIGNATURE			SIGNATURE		
D, HYPOXIA, GTIP AA OF EJECTION SJU 5/6/17	DATE 4JUN15	GRADE Q	UNIT MAG 11	DATE	GRADE	UNIT	DATE	GRADE	UNIT	DATE	GRADE	UNIT
	[redacted]			SIGNATURE			SIGNATURE			SIGNATURE		
Hypoxia - ROBD Dynamic	DATE 24OCT2015	GRADE Q	UNIT 101	DATE	GRADE	UNIT	DATE	GRADE	UNIT	DATE	GRADE	UNIT
	[redacted]			SIGNATURE			SIGNATURE			SIGNATURE		
LASER SAFETY	DATE FEB16	GRADE	UNIT JJ	DATE	GRADE	UNIT	DATE	GRADE	UNIT	DATE	GRADE	UNIT
	[redacted]			SIGNATURE			SIGNATURE			SIGNATURE		
Laser Safety	DATE 23Mar16	GRADE Q	UNIT MAG11	DATE	GRADE	UNIT	DATE	GRADE	UNIT	DATE	GRADE	UNIT
	[redacted]			SIGNATURE			SIGNATURE			SIGNATURE		

TRAINING ACTIVITIES

1. Pensacola, FL	8. Barbers Point, HI	15. Brunswick, ME
2. Miramar, CA	9. Cecil Field, FL	16. FASOTRAGRUPAC
3. Norfolk, VA	10. Cherry Point, NC	17. FASOTRAGRULANT
4. Corpus Christi, TX	11. Whidbey Island, WA	18. MCAS New River, NC
5. Lemoore, CA	12. Beaufort, SC	19. Okinawa
6. El Toro, CA	13. Point Mugu, CA	20. Other (List)
7. Jacksonville, FL	14. Patuxent River, MD	21.

ENCLOSURE (17)

☆ U.S. Government Printing Office: 1982 583-004/1073

NATOPS EVALUATION REPORT
OPNAV 3710/7 (4-90) S/N 0107-LF-009-8000

REPORT SYMBOL OPNAV 3710-21

NAME (Last, first, initial)	GRADE	SERVICE NUMBER
NORTON, RICHARD S.	O-4	
SQUADRON/UNIT	**AIRCRAFT MODEL**	**CREW POSITION**
VMFA-232	F/A-18	PILOT
TOTAL PILOT/FLIGHT HOURS	**TOTAL HOURS IN MODEL**	**DATE OF LAST EVALUATION**
1217.3	863.3	18 SEPT 15

NATOPS EVALUATION

REQUIREMENT	DATE COMPLETED	GRADE		
		Q	CQ	U
OPEN BOOK EXAMINATION	7 JUN 16	☒		☐
CLOSED BOOK EXAMINATION	7 JUN 16	☒		☐
ORAL EXAMINATION	7 JUN 16	☒		☐
*EVALUATION FLIGHT	7 JUN 16	☒	☐	☐

FLIGHT DURATION	AIRCRAFT BUNO	OVERALL FINAL GRADE
1.0	AFT-1	QUALIFIED

REMARKS OF EVALUATOR/INSTRUCTOR

Maj Norton demonstrated sound knowledge of F/A-18 NATOPS procedures and standardization in accordance with OPNAVINST 3710.7. Maj Norton has conducted Crew Resource Management in accordance with OPNAVINST 1542.7. Maj Norton has completed Out-of-Control-Flight simulator training in accordance with MAG-11 GruO 3715.1. Maj Norton is unconditionally NATOPS qualified in the F/A-18.

EXPIRES: 30 JUN 17

GRADE, NAME OF EVALUATOR/INSTRUCTOR	SIGNATURE	DATE
[redacted]	[redacted]	7 JUN 16
GRADE, NAME OF EVALUEE	**SIGN**	**DATE**
MAJ R. S. NORTON	[redacted]	7 JUN 16

REMARKS OF UNIT COMMANDER

Maj Norton has shown proficiency consistent with aircrew of his peers. Maj Norton has outstanding potential for growth.

RANK, NAME OF UNIT COMMANDER	SIGNATURE	DATE
[redacted]	[redacted]	7 JUN 16

*WST, OFT, COT, or cockpit check in accordance with OPNAVINST 3710.7 (effective edition)

ENCLOSURE (17)

NATOPS INSTRUMENT RATING REQUEST
OPNAV 3710/2 (REV. 1-74) S/N 0107-LF-728-2903

REF: OPNAVINST 3710.7 SERIES / OPNAVINST 3510.9 SERIES / NATOPS INSTRUMENT FLIGHT MANUAL

NAME (LAST, FIRST, MIDDLE INITIAL)	GRADE	SSN	DATE
NORTON, RICHARD S.	O-4		7 JUN 16

UNIT: VMFA-232

APPLICATION IS HEREBY MADE FOR AN INSTRUMENT QUALIFICATION (Check One)

☒ STANDARD ☐ SPECIAL ☐ NFO

EXPERIENCE SUMMARY

MISCELLANEOUS SUMMARY

ITEM	LAST 6 MO.	LAST 12 MO.
PRECISION APPROACHES	11	14
NON-PRECISION APPROACHES	19	25
TOTAL PILOT TIME		1217.3

INSTRUMENT PILOT TIME

ITEM	PAST 12 MO.	LAST 6 MO.	TOTAL ALL YEARS
ACTUAL	26.0	26.0	146.5
SIMULATED	8.9	2.0	100.2
INSTRUMENT PILOT TIME TOTAL	34.9	28.0	246.7

TOTAL YEARS FLYING EXPERIENCE (Military and Commercial): 10

AIRCRAFT QUALIFICATIONS: F/A-18

CURRENT RATING: STANDARD

PILOT'S BIRTHDAY: 12 JUN 1980

SIGNATURE OF APPLICANT: [redacted]

WRITTEN EXAMINATION

THIS IS TO CERTIFY THAT THE APPLICANT HAS... ☒ SATISFACTORILY ☐ UNSATISFACTORILY

...COMPLETED THE WRITTEN EXAMINATION FOR AN INSTRUMENT RATING AS REQUIRED BY THE NATOPS INSTRUMENT FLIGHT MANUAL

1ST EXAM (GRADE)	2ND EXAM (GRADE)	3RD EXAM (GRADE)
QUALIFIED	N/A	N/A

SIGNATURE OF EXAMINING OFFICER: [redacted] (GRADE): PASS

UNIT: Marine Aircraft Group 11, HQ DATE: 1 JUN 16

FLIGHT EVALUATION

	PART ONE (Basic Instruments)	QUAL	UNQUAL
1	INSTRUMENT TAKEOFF (Optional)	☒	☐
* 2	CLIMBING, DESCENDING AND TIMED TURNS	☒	☐
* 3	STEEP TURNS	☒	☐
* 4	RECOVERY FROM UNUSUAL ATTITUDES	☒	☐
5	VOR/TACAN POSITIONING	☒	☐
* 6	PARTIAL PANEL AIRWORK	☒	☐
7	ADF/MDF ORIENTATION	☒	☐

	PART TWO (Instrument Flight within control areas with emphasis on VOR/TACAN where feasible)	QUAL	UNQUAL
1	FLIGHT PLANNING	☒	☐
2	CLEARANCE COMPLIANCE	☒	☐
3	INSTRUMENT APPROACHES	☒	☐
4	COMMUNICATIONS AND NAVIGATION EQUIPMENT	☒	☐
5	EMERGENCY PROCEDURES	☒	☐
6	VOICE PROCEDURES	☒	☐

* Not required when evaluation is conducted under actual instrument conditions.

REMARKS

Maj Norton demonstrated sound knowledge of the F/A-18 NATOPS Instrument procedures and standardization in accordance with OPNAVINST 3710.7.

DATE OF FLIGHT CHECK	AIRCRAFT MODEL	BUNO
7 JUN 16	F/A-18	AFT

SIGNATURE OF FLIGHT EXAMINER (Grade and title): [redacted]

INSTRUMENT RATING ISSUED ☒ STANDARD ☐ SPECIAL ☐ NFO QUAL (Expires) 6 JUN 17

SIGNATURE OF OFFICER ISSUING CARD (Grade and title): [redacted]

ENCLOSURE (17)

VMFA-232 HOT BOARD

July 27, 16 10:10

Highlight		> 15		<= 15	> 16	> 15			< 16								
Expired		> 30		<= 10	> 30	> 30			< 60								
Name	Current Month Time	Last Flight	Sorties Last 14 Days	Prev Month	Last Dive Delivery	Last Night Flight	Flight Time Last Six Months	Night Time Last Six Months	30 Day Flight Time	60 Day Flight Time	FY Flight Time	FY Night Time	90 Day Flight time	Total FA-18B Time	Total Flight Time	Sim Time	Total FA-18ACD Time
Assigned to permanent unit																	
[redacted]	16.3	26-Jul-16 / 0	11	12.7	24-Jul-16 / 2	13-Jul-16 / 13	86.0	12.6	17.8	29.6	106.6	13.0	40.8	0.0	3064.1	9.1	2542.3
	19.8	26-Jul-16 / 1	9	27.9	24-Jul-16 / 2	24-Jul-16 / 2	92.5	14.9	21.1	47.7	122.5	14.9	51.9	92.2	2535.2	4.2	2193.5
	16.4	26-Jul-16 / 0	7	14.6	26-Jul-16 / 0	13-Jul-16 / 13	92.6	19.8	17.6	33.3	92.6	19.8	43.5	0.0	1150.4	12.6	896.8
	0.0	[redacted]	-	0.0	[redacted]	[redacted]	0.0	0.0	[redacted]	0.0	0.0	0.0	0.0	5.4	1611.7	0.0	1364.1
MAJ NORTON	10.0	26-Jul-16 / 1	4	18.3	26-Jul-16 / 1	16-Jul-16 / 8	88.0	21.8	11.4	28.3	128.1	25.3	40.6	3.1	1157.1	12.2	885.1
[redacted]	11.7	24-Jul-16 / 2	7	11.8	23-Jul-16 / 3	20-Jul-16 / 6	88.8	23.0	13.0	23.5	167.0	29.7	37.8	63.4	2188.8	10.6	1701.2
	9.3	25-Jul-16 / 1	5	[redacted]	25-Jul-16 / 1	18-Jul-16 / 8	46.6	6.1	12.4	17.8	62.4	6.8	28.4	15.6	390.0	13.1	144.2
	22.9	23-Jul-16 / 3	6	10.2	23-Jul-16 / 3	21-Jul-16 / 5	72.9	14.6	24.4	33.1	132.6	28.7	42.6	15.5	811.7	11.0	554.6
	4.1	15-Jul-16 / 12	2	10.3	12-Jul-16 / 14	[redacted]	76.2	10.2	[redacted]	14.4	98.3	12.2	31.2	17.3	460.8	17.1	190.9
	9.1	23-Jul-16 / 3	4	10.1	23-Jul-16 / 3	18-Jul-16 / 8	51.8	7.1	[redacted]	19.2	72.9	11.2	24.7	29.7	696.0	7.8	407.3
	19.7	26-Jul-16 / 1	5	23.8	24-Jul-16 / 2	07-Jul-16 / 19	83.6	8.2	21.1	43.5	139.1	17.6	51.7	21.0	855.7	9.2	684.3
	15.3	26-Jul-16 / 0	5	23.6	26-Jul-16 / 0	21-Jul-16 / 5	72.4	7.8	17.8	38.9	122.5	14.3	44.0	0.0	1127.4	5.1	885.2
	0.0	[redacted]	-	[redacted]	[redacted]	[redacted]	69.3	5.5	[redacted]	0.0	137.5	34.2	6.5	11.2	1174.0	2.9	882.5
	14.8	26-Jul-16 / 0	7	17.8	26-Jul-16 / 0	24-Jul-16 / 2	86.5	17.5	14.8	32.6	105.8	18.5	49.0	26.4	729.5	11.5	450.7

ENCLOSURE (18)

F/A-18 PLAN : PROGRAMMATICS, SUSTAINMENT AND FUTURE

F/A-18A-D:

The F/A-18A-D community continues combat operations for the fourteenth straight year as Hornets support OPERATION INHERENT RESOLVE from both land-based SPMAGTF-CR and the aircraft carrier.

The USMC fleet currently has eleven active squadrons and one reserve squadron that has a sustained 40 aircraft shortage due to depot maintenance backlog. HQMC has reset the force by temporarily reducing squadron flight line entitlement (FLE) to 10 aircraft to preserve future combat readiness while meeting today's current operational requirements. Forecasted improvements in aircraft availability will enable USMC F/A-18s to deploy 12 PMAI squadrons in 2017.

SUSTAINMENT:

The F/A-18 Service Life Management Program (SLMP) consists of the Center Barrel Replacement Plus (CBR+) and High Flight Hour (HFH) inspection programs. The CBR+ has extended the service life of 210 Lot 17 and below aircraft and the HFH inspection has extended the life of more than 160 DoN F/A-18A-D aircraft beyond 8000 hours.

In parallel to HFH and CBR+ maintenance, the Service Life Extension Program (SLEP) incorporates a combination of inspections, repairs and a number of Engineering Change Proposals to extend an additional ~150 hand selected F/A-18 C/D to 10,000 Flight Hours. In FY15 the first Marine Hornet was authorized to 10,000 hours.

FUTURE:

In FY15 the USMC F/A-18 program, PMA-265, and industry began integration of the Advanced Capabilities Mission Computer (ACMC) for the F/A-18C/D that will run High Order Language (HOL) based on FA-18E/F Super Hornet Operational Flight Program software. The ACMC and upgraded displays will posture Marine F/A-18s as a fully digital interoperable platform to support the MAGTF and ensure tactical relevance as a lethal, interoperable, and survivable TACAIR aircraft.

TACAIR Integration (TAI): Currently the Marine Corps has three TAI squadrons allocated to USN CVWs and in FY17 will reduce to two TAI F/A-18C squadrons. The Navy and Marine Corps will increase TAI levels to three, and eventually four, with the IOC of F-35C. The Marine Corps is committed to TAI and the F-35C program.

***Note: throughout this document, items denoted in red are unfunded per current budgeting**

Final Fit:

Survivability Upgrade Roadmap:

ALR-67 v3 - 2016

ALQ-214 v5 - 2016

Interoperability Upgrade Roadmap:

High Order Language mission computers - 2020

DACAS/ Gen 5 radios (software reprogrammable) - scheduled to field in 2017

MIDS JTRS (CMN-4/ TTNT 7.0) - scheduled to begin fielding in 2017

Lethality Upgrade Roadmap:

AIM-120D – 2016

Litening Air to Air functionality – 2016

AIM-9X Block II – 2017

Zap Lars (limited functions) – 2017

Upgraded displays – 2017/18

Intrepid Tiger II V 1 Block X

APKWS – 2017/18

Stand-off net-enabled weapons: JDAM-ER / SDBII / JSOW-C1

Reliability Upgrade Roadmap:

Solid-state recorders – 2016

ENCLOSURE (19)

MAJ NORTON CAREER FLIGHT HOURS

Date	Model	BUNO	TPT	1PT	CPT	ACDR	SCT	COMBAT	HLL	LLL	FWNVG	Total NVG	ACT	SIM	BASE LINE	3L Time	NITE	FA	NFA	PL	NPL	T&R Code(s)
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5/30/2006 12:00 AM	T-34C	-	96.3	79	17.3	7.7	0	0	0	0	0	0	6.6	18.3	1	0	3.6	0	0	8	11	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1/3/2008 12:00 AM	T-45A	-	15.5	14.4	1.1	0	0	0	0	0	0	0	0.7	0.2	1	0	0	3	1	12	7	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9/30/2008 12:00 AM	FA-18B	-	3.1	3.1	0	3.1	0	0	0	0	0	0	0	1	1	0	0	0	0	3	1	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9/30/2008 12:00 AM	FA-18D	-	24	23.1	0.9	6.8	0	0	0	0	0	0	1.4	1.9	1	0	1.7	7	2	6	1	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
9/30/2009 12:00 AM	FA-18D	-	23	23	0	23	0	0	0	0	2	2	1.1	0.5	1	0	10.7	2	1	1	0	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
11/18/2009 1:00 PM	FA-18D	165412	1.2	1.2	0	1.2	0	0	0	0	0	0	0.2	1	0	0	0	0	0	1	3	2102
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12/4/2009 11:40 AM	FA-18D	165681	1.3	1.3	0	1.3	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0	2102
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12/6/2009 10:30 AM	FA-18D	164662	1.4	1.4	0	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12/15/2009 10:00 AM	FA-18D	164677	1.4	1.4	0	1.4	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3/9/2010 6:43 PM	FA-18D	165532	1.5	1.5	0	1.5	0	0	0	0	1.4	1.4	0	0.2	0	0	1.5	0	0	0	1	2402, 2403
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3/18/2010 12:00 PM	FA-18C	165191	1.5	1.5	0	1.5	0	0	0	0	0	0	0	0.8	0	0	0	0	0	4	1	2101, 2102
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4/13/2010 2:08 PM	FA-18D	164677	1.4	1.4	0	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2101, 2509, 9004
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4/15/2010 2:00 PM	FA-18D	165410	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2101, 2503, 2504
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4/17/2010 11:20 AM	FA-18D	165680	1.6	1.6	0	1.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2303, 2304, 2310, 3201
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4/17/2010 6:30 PM	FA-18D	165680	0.7	0.7	0	0.7	0	0	0	0	0	0	0	0	0	0	0.7	0	0	0	0	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4/20/2010 2:20 PM	FA-18D	165410	2.6	2.6	0	2.6	0	0	0	0	0	0	0.2	0	0	0	0	0	1	0	0	2201, 2303, 2304, 3101, 3103, 3104
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5/4/2010 11:35 AM	FA-18D	164677	3	3	0	3	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	1	2201, 2303, 2304, 3103
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5/19/2010 4:20 PM	FA-18D	164679	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6727
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5/23/2010 2:03 PM	FA-18D	164677	1.7	1.7	0	1.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2101, 2102
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5/24/2010 10:15 PM	FA-18D	164898	1.2	1.2	0	1.2	0	0	0	0	1.1	1.1	0	0.2	0	0	1.2	0	0	0	1	2101
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5/26/2010 7:56 PM	FA-18D	164679	2.7	2.7	0	2.7	0	0	0	0	2.7	2.7	0.2	0	0	0	2.7	1	0	0	0	2202, 2303
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5/28/2010 2:20 PM	FA-18D	165415	1.5	1.5	0	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2102
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6/6/2010 11:57 AM	FA-18D	165410	1.5	1.5	0	1.5	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	1	2508
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6/10/2010 9:37 PM	FA-18D	164677	1.5	1.5	0	1.5	0	0	0	0	1.5	1.5	0.2	0	0	0	1.5	1	0	0	0	3703
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6/22/2010 9:40 PM	FA-18D	165532	1.3	1.3	0	1.3	0	0	0	0	0	0	0	0	0	0	1.3	0	0	0	0	3705
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6/28/2010 9:30 PM	FA-18D	164898	2.3	2.3	0	2.3	0	0	0	0	2.2	2.2	0.2	0	0	0	2.3	1	0	0	0	2202, 3106
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6/30/2010 3:50 PM	FA-18D	164690	1.3	1.3	0	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2102, 2506, 3401, 3402, 3403
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7/17/2010 12:24 PM	FA-18D	164898	1.2	1.2	0	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7/22/2010 10:43 AM	FA-18D	164677	1.5	1.5	0	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2303, 2306, 3103, 6109, 6704
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7/28/2010 5:36 PM	FA-18D	165409	1.6	1.6	0	1.6	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	2201, 3502, 3503, 3701, 3703, 4601, 6706, 6719
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7/30/2010 5:38 PM	FA-18D	165409	1	1	0	1	0	0	0	0	0	0	0.1	0	0	0	0	1	0	0	0	2101, 2102
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8/27/2010 9:40 AM	FA-18D	165680	1.1	1.1	0	1.1	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	2102
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9/2/2010 9:52 AM	FA-18D	164677	1.3	1.3	0	1.3	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	1	2201, 6109
9/8/2010 1:00 PM	FA-18D	165680	7.1	7.1	0	7.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

ENCLOSURE (20)

9/14/2010 4:45 PM	FA-18D	164677	0.7	0.7	0	0.7	0	0	0	0	0	0	0.3	0	0	0	0	0	1	0	0	2101, 2102
9/24/2010 11:13 AM	FA-18D	164670	3.6	0	3.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2101
9/30/2010 11:20 AM	FA-18D	164662	1.4	1.4	0	1.4	0	0	0	0	0	0	1.1	0	0	0	0	0	1	1	0	2101, 2102
10/15/2010 10:50 AM	FA-18D	165680	2.8	2.8	0	2.8	0	0	0	0	0	0	1.1	0.1	0	0	0	0	0	2	0	
10/18/2010 8:45 AM	FA-18D	165415	1.1	1.1	0	1.1	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	
10/19/2010 2:46 PM	FA-18D	165684	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2501, 2502, 2503, 2504
10/20/2010 11:20 AM	FA-18D	164677	0.9	0.9	0	0.9	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0	2501, 2506
10/21/2010 1:48 PM	FA-18D	165680	1.2	1.2	0	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/22/2010 11:10 AM	FA-18D	165684	1.2	1.2	0	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/24/2010 1:30 PM	FA-18D	164679	1.5	1.5	0	1.5	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0	
10/24/2010 3:00 PM	FA-18D	164679	1.5	1.5	0	1.5	0	0	0	0	1.2	1.2	1	0	0	0	1.5	2	1	0	0	2102
10/25/2010 1:05 PM	FA-18D	164679	2	2	0	2	0	0	0	0	0	0	1.8	0	0	0	0	3	0	0	0	2102
11/2/2010 7:00 PM	FA-18D	165409	1.5	1.5	0	1.5	0	0	0	0	1.3	1.3	0	0.4	0	0	0	1.5	0	0	1	2101, 2102
11/8/2010 11:45 AM	FA-18D	164662	3.6	3.6	0	3.6	0	0	0	0	0	0	0.8	0	0	0	0	2	0	1	0	2310, 3103
11/10/2010 11:20 AM	FA-18D	164662	3.3	3.3	0	3.3	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	2503, 6106
11/15/2010 10:03 AM	FA-18D	164682	3	3	0	3	0	0	0	0	0	0	1.5	0	0	0	0	0	0	0	0	2102, 2503
11/17/2010 7:05 PM	FA-18D	165415	1.6	1.6	0	1.6	0	0	0	0	1.4	1.4	0	0.1	0	0	1.6	0	0	0	1	2103, 5402
11/18/2010 2:39 PM	FA-18D	165532	1.8	1.8	0	1.8	0	0	0	0	1.8	1.8	0	0.2	0	0	1.8	0	0	0	1	3405, 4602
11/24/2010 9:03 AM	FA-18D	165684	1.5	1.5	0	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2101, 2402, 2704, 2706
11/29/2010 10:15 PM	FA-18D	165681	1.5	1.5	0	1.5	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0	3202
11/30/2010 11:35 AM	FA-18D	164677	1.1	1.1	0	1.1	0	0	0	0	0	0	0.3	0	0	0	0	0	1	0	0	2302, 2304
12/2/2010 12:58 PM	FA-18D	164682	3.3	3.3	0	3.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2101, 2102
12/4/2010 12:35 PM	FA-18D	165411	2	2	0	2	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	1	2305, 4604, 4605
12/7/2010 1:02 PM	FA-18D	165411	1.8	1.8	0	1.8	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	2201, 3402, 4601
12/9/2010 6:20 PM	FA-18D	165409	1.6	1.6	0	1.6	0	0	0	0	1.6	1.6	0.1	0	0	0	1.6	0	0	0	0	
12/13/2010 11:08 AM	FA-18D	164677	1.8	1.8	0	1.8	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0	2402
12/14/2010 10:48 AM	FA-18D	165532	1	1	0	1	0	0	0	0	0	0	0.8	0	0	0	0	0	1	0	0	2102
12/15/2010 1:09 PM	FA-18D	164679	1.5	1.5	0	1.5	0	0	0	0	0	0	1.4	0	0	0	0	1	0	0	0	2101, 2103
12/15/2010 6:00 PM	FA-18D	165684	1.5	1.5	0	1.5	0	0	0	0	1.5	1.5	1.5	0	0	0	1.5	0	1	0	0	2103, 2104
12/17/2010 10:25 AM	FA-18D	165532	1.6	1.6	0	1.6	0	0	0	0	0	0	0.5	0	0	0	0	1	0	0	0	2106
12/17/2010 2:53 PM	FA-18D	165411	2.8	2.8	0	2.8	0	0	0	0	0	0	0.3	0	0	0	0	1	0	0	0	2303, 2304, 6702, 6707
12/18/2010 11:45 AM	FA-18D	165411	3.2	3.2	0	3.2	0	0	0	0	0	0	0.2	0	0	0	0	0	1	0	0	2102
12/20/2010 6:50 PM	FA-18D	164679	1.2	1.2	0	1.2	0	0	0	0	1.2	1.2	0.3	0	0	0	1.2	0	1	0	0	2303
12/21/2010 12:40 PM	FA-18D	165684	2.3	2.3	0	2.3	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	2303
12/22/2010 10:15 AM	FA-18D	165409	1.3	1.3	0	1.3	0	0	0	0	0	0	0.2	0	0	0	0	0	1	0	0	2304
12/29/2010 9:25 AM	FA-18D	164670	0.8	0.8	0	0.8	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	2303, 2304, 6304
1/6/2011 12:10 PM	FA-18D	164662	3.6	3.6	0	3.6	0	0	0	0	0	0	0.8	0	0	0	0	0	0	0	0	2302
1/7/2011 11:00 AM	FA-18D	164668	3.6	3.6	0	3.6	0	0	0	0	0	0	0.4	0	0	0	0	0	0	0	0	2102
1/8/2011 11:37 AM	FA-18D	164662	2	2	0	2	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	5402
1/11/2011 2:00 PM	FA-18D	164680	1.4	1.4	0	1.4	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	2101, 3403
1/12/2011 10:00 AM	FA-18D	164690	1.3	1.3	0	1.3	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	2501
1/13/2011 9:45 AM	FA-18D	165411	1.3	1.3	0	1.3	0	0	0	0	0	0	0.2	0	0	0	0	2	0	0	0	3402
1/20/2011 11:30 AM	FA-18D	165411	1.3	1.3	0	1.3	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	1	2302
2/2/2011 4:05 PM	FA-18D	164680	1.6	1.6	0	1.6	0	0	0	0	1.6	1.6	0.3	0	0	0	1.6	0	1	0	0	2101, 2501
2/3/2011 10:50 AM	FA-18D	165532	1.3	1.3	0	1.3	0	0	0	0	0	0	0	0.4	0	0	0	0	0	0	1	2310, 5203
2/5/2011 1:15 PM	FA-18D	165532	1.8	1.8	0	1.8	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0	2101, 2102
2/9/2011 5:45 PM	FA-18D	165415	1.6	1.6	0	1.6	0	0	0	0	0.7	0.7	0.2	0	0	0	1	0	1	0	0	2501, 6109
2/10/2011 12:18 PM	FA-18D	165680	1.4	1.4	0	1.4	0	0	0	0	0	0	0.3	0	0	0	0	1	0	0	0	3302, 9012
2/17/2011 12:40 PM	FA-18D	165415	2.2	2.2	0	2.2	0	0	0	0	0	0	0.5	0	0	0	0	1	0	0	0	2101, 2102, 2503
2/18/2011 12:30 PM	FA-18D	165684	0.4	0.4	0	0.4	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	1	2201, 2310, 6109
2/23/2011 11:00 AM	FA-18D	164670	2	2	0	2	0	0	0	0	0	0	0.3	0	0	0	0	0	1	0	0	2101, 2108
2/24/2011 4:00 PM	FA-18D	164677	1.5	1.5	0	1.5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	2201, 6109, 6312
3/2/2011 3:00 PM	FA-18D	165415	1.5	1.5	0	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3402
3/4/2011 10:30 AM	FA-18D	165415	1.4	1.4	0	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3702
3/9/2011 9:30 AM	FA-18D	165415	1.6	1.6	0	1.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3/12/2011 10:00 AM	FA-18D	165684	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2101
3/13/2011 9:00 AM	FA-18D	165684	6	6	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2102, 2201, 6109
3/21/2011 10:00 AM	FA-18D	164680	1.6	1.6	0	1.6	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0	2102, 2201, 6109
3/22/2011 2:50 PM	FA-18D	165684	1.5	1.5	0	1.5	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	2503
3/24/2011 10:00 AM	FA-18D	165415	1.3	1.3	0	1.3	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	2503
3/29/2011 12:20 PM	FA-18D	165684	2.1	2.1	0	2.1	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	1	2201, 3103, 3104, 6306
3/30/2011 12:20 PM	FA-18D	165684	2.1	2.1	0	2.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2201, 3103, 3104, 6307
4/5/2011 11:45 AM	FA-18D	164679	3.6	3.6	0	3.6	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	1	2101, 2310, 3104
4/7/2011 11:40 AM	FA-18D	165680	1.2	1.2	0	1.2	0	0	0	0	0	0	0.3	0	0	0	0	1	0	0	0	3603, 6306
4/8/2011 9:54 AM	FA-18D	165684	2.6	2.6	0	2.6	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	2	2101, 2503
4/9/2011 9:01 AM	FA-18D	165684	3.9	3.9	0	3.9	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	3	2501, 2502, 2503
4/10/2011 10:26 AM	FA-18D	165684	2.3	2.3	0	2.3	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	1	2501, 2502, 2503
4/14/2011 2:15 PM	FA-18D	165684	0.9	0.9	0	0.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2201, 2302, 2308, 9216
4/15/2011 9:00 AM	FA-18D	165680	2.7	2.7	0	2.7	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	2201, 3103, 3401, 6109, 6702, 6705
4/20/2011 8:00 PM	FA-18D	164679	2.6	2.6	0	2.6	0	0	0	0	2.6	2.6	0.3	0	0	0	2.6	1	2	0	0	2308, 3106
4/27/2011 8:00 PM	FA-18D	164898	1.6	1.6	0	1.6	0	0	0	0	1.5	1.5	1.5	0	0	0	1.5	0	1	0	0	3105
5/3/2011 8:05 PM	FA-18D	164679	1.1	1.1	0	1.1	0	0	0	0	1.1	1.1	0.8	0.1	0	0	1.1	0	0	0	1	2306, 3106

ENCLOSURE (20)

5/9/2011 12:07 PM	FA-18D	165684	1.5	1.5	0	1.5	0	0	0	0	0	0	0.2	0	0	0	0	0	1	0	0	3702
5/16/2011 9:05 PM	FA-18D	164670	1.4	1.4	0	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3502
5/26/2011 7:30 PM	FA-18D	164677	1.5	1.5	0	1.5	0	0	0	0	1.4	1.4	0.8	0	0	0	1.5	0	0	0	0	3705
6/1/2011 2:00 PM	FA-18D	164677	1.2	1.2	0	1.2	0	0	0	0	0	0	0.8	0	0	0	0	0	0	0	0	2501, 2502, 2503, 2506, 6308
6/9/2011 4:00 PM	FA-18D	164677	1.2	1.2	0	1.2	0	0	0	0	0	0	0.2	0	0	0	0	1	0	0	0	2508, 2509, 6310
6/10/2011 10:45 AM	FA-18D	164677	1.4	1.4	0	1.4	0	0	0	0	0	0	0.2	0	0	0	0	1	0	0	0	2508, 2509, 6310
6/14/2011 10:40 AM	FA-18D	165410	2.8	2.8	0	2.8	0	0	0	0	0	0	0.2	0	0	0	0	1	0	0	0	2101, 2102, 2602, 3702
6/21/2011 11:45 AM	FA-18D	165411	1.3	1.3	0	1.3	0	0	0	0	0	0	0.1	0	0	0	0	0	1	0	0	2101, 3702
6/22/2011 8:43 PM	FA-18D	165410	1.5	1.5	0	1.5	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	1	2101, 3704, 6315
6/24/2011 9:45 PM	FA-18D	165410	2.7	2.7	0	2.7	0	0	0	0	0	0	0.3	0	0	0	1.5	1	0	0	0	2102
6/25/2011 1:20 PM	FA-18D	165410	3.7	3.7	0	3.7	0	0	0	0	0	0	0.5	0	0	0	0.1	0	2	0	0	2102, 2602, 2603, 3201
6/26/2011 12:41 PM	FA-18D	165410	1.9	1.9	0	1.9	0	0	0	0	0	0	0.2	0	0	0	0	0	2	0	0	2101, 2106, 2304, 3202
6/28/2011 10:01 PM	FA-18D	165410	1.6	1.6	0	1.6	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	2	3203, 3302
6/29/2011 9:45 PM	FA-18D	165532	2.3	2.3	0	2.3	0	0	0	0	0	0	0.2	0	0	0	1.6	1	0	0	0	3103, 3104
6/30/2011 4:50 PM	FA-18D	165410	1.3	1.3	0	1.3	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	1	2101, 2306
7/8/2011 11:35 AM	FA-18D	164677	1.8	1.8	0	1.8	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0	2103, 3308
7/13/2011 6:08 PM	FA-18D	164679	0.5	0.5	0	0.5	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	2101
7/19/2011 12:31 PM	FA-18D	164679	2.5	2.5	0	2.5	0	0	0	0	0	0	0	0.1	0	0	0	0	0	0	1	3104, 6707, 6710
7/21/2011 12:55 PM	FA-18D	164683	2.1	2.1	0	2.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2201, 4303
7/28/2011 1:08 PM	FA-18D	165409	1.5	1.5	0	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2304, 3818, 3104, 4303, 6707
7/27/2011 7:54 PM	FA-18D	165409	2.3	2.3	0	2.3	0	0	0	0	2.3	2.3	0.2	0	0	0	2.3	0	1	0	0	2202, 3106, 3203, 3302
8/1/2011 3:49 PM	FA-18D	164690	1.9	1.9	0	1.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2101, 2106
8/1/2011 7:43 PM	FA-18D	164690	2.1	2.1	0	2.1	0	0	0	0	0	0	0.4	0	0	0	0	1	0	0	0	2102
8/1/2011 11:02 PM	FA-18D	164690	1.1	1.1	0	1.1	0	0	0	0	0	0	0.8	0	0	0	0	0	1	0	0	2102
8/4/2011 1:00 PM	FA-18D	164690	1.4	1.4	0	1.4	0	0	0	0	0	0	0.8	0	0	0	0	0	1	0	0	2101, 2303, 2304, 2602, 3103, 3105
8/8/2011 8:52 PM	FA-18D	164690	0.6	0.6	0	0.6	0	0	0	0	0	0	0.6	0	0	0	0	0	1	0	0	2101, 2104, 2405, 3105, 3106
8/10/2011 9:20 PM	FA-18D	164677	1.4	1.4	0	1.4	0	0	0	0	1.4	1.4	1.4	0	0	0	1.4	0	1	0	0	2303, 3103, 3806
8/13/2011 4:07 PM	FA-18D	164677	1.7	1.7	0	1.7	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	2303, 3103, 3804
8/15/2011 2:44 PM	FA-18D	164677	2.6	2.6	0	2.6	0	0	0	0	0	0	0.3	0	0	0	0	0	1	0	0	3105, 3807
8/17/2011 12:16 PM	FA-18D	164677	1.8	1.8	0	1.8	0	0	0	0	0	0	0.4	0	0	0	0	0	1	0	0	2101, 2102, 2303, 3103
8/19/2011 1:30 PM	FA-18D	164690	1.5	1.5	0	1.5	0	0	0	0	0	0	0.2	0	0	0	0	0	1	0	0	2302, 3103, 3104, 3810, 6711
8/22/2011 4:05 PM	FA-18D	164911	1.5	1.5	0	1.5	0	0	0	0	0	0	0.4	0	0	0	0	1	0	0	0	2101, 2102
8/23/2011 4:45 PM	FA-18D	165410	0.5	0.5	0	0.5	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	2303, 2304, 2405, 3106, 3803, 3809, 3811
8/24/2011 7:48 PM	FA-18D	165411	2.8	2.8	0	2.8	0	0	0	0	2.5	2.5	2.8	0	0	0	2.5	0	1	0	0	2101, 2306, 2602, 3104
8/25/2011 11:10 AM	FA-18D	164690	1.5	1.5	0	1.5	0	0	0	0	0	0	0.7	0	0	0	0	0	0	0	0	2301
9/8/2011 12:11 PM	FA-18D	165411	1.3	1.3	0	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2102, 2201, 3503
9/14/2011 11:05 AM	FA-18D	164683	1.3	1.3	0	1.3	0	0	0	0	0	0	0.2	0	0	0	0	0	1	0	0	2101, 2102
9/20/2011 4:55 PM	FA-18D	164679	0.3	0.3	0	0.3	0	0	0	0	0	0	0.1	0	0	0	0.1	0	1	0	0	2602, 2603
9/22/2011 11:45 AM	FA-18D	164683	1.1	1.1	0	1.1	0	0	0	0	0	0	0.4	0	0	0	0	0	1	0	0	2302, 2303, 3106
10/4/2011 9:16 PM	FA-18D	164911	1.5	1.5	0	1.5	0	0	0	0	1.5	1.5	1.5	0	0	0	1.5	1	0	0	0	2306, 2509, 2602, 2603, 3702, 6405
10/14/2011 10:15 AM	FA-18D	165411	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2915, 3702, 6706
10/18/2011 3:06 PM	FA-18D	164888	1.4	1.4	0	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2306, 2404, 3704
10/19/2011 8:06 PM	FA-18D	165409	1.2	1.2	0	1.2	0	0	0	0	1.2	1.2	1.2	0	0	0	1.2	0	0	0	0	2101, 2304, 3703, 6709
10/21/2011 10:28 AM	FA-18D	164889	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2102
1/5/2012 7:46 PM	FA-18D	165409	1.4	1.4	0	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3/31/2012 6:55 PM	FA-18D	165412	1	1	0	1	0	0	0	0	0	0	0.2	0	0	0	0	0	1	0	0	
9/30/2012	FA-18D	-	63.2	63.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/13/2012 8:31 AM	FA-18D	164677	1.2	1.2	0	1.2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	
10/16/2012 5:39 PM	FA-18D	165684	1	1	0	1	0	0	0	0	0	0	0.3	0.6	0	0	0	0	1	0	0	2102
10/17/2012 10:20 AM	FA-18D	164918	1.4	1.4	0	1.4	0	0	0	0	0	0	0	1	0	0	0	0	0	3	2	2102
10/18/2012 10:24 AM	FA-18D	165412	1.6	1.6	0	1.6	0	0	0	0	0	0	0	1.6	0	0	0	0	0	2	2	2102, 6101, 6604, 6805
10/19/2012 10:05 AM	FA-18D	164888	1.7	1.7	0	1.7	0	0	0	0	0	0	0.2	0.2	0	0	0	0	0	0	0	2102
10/23/2012 9:20 AM	FA-18D	164690	1.5	1.5	0	1.5	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	
10/23/2012 11:39 AM	FA-18D	164690	1.2	1.2	0	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10/24/2012 2:27 PM	FA-18D	165415	1.3	1.3	0	1.3	0	0	0	0	0	0	0.2	0	0	0	0	0	1	0	0	2304, 3702, 6706
10/25/2012 6:58 PM	FA-18D	164684	1.4	1.4	0	1.4	0	0	0	0	1.2	1.2	0.4	0	0	0	1.4	0	0	0	0	2102
11/2/2012 2:41 PM	FA-18D	164898	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4402
11/2/2012 5:07 PM	FA-18D	164898	1	1	0	1	0	0	0	0	0	0	0.4	0	0	0	0.5	0	0	0	0	
11/3/2012 11:05 AM	FA-18D	164898	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2102
11/3/2012 2:56 PM	FA-18D	164898	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6735
11/4/2012 4:02 PM	FA-18D	164898	1	1	0	1	0	0	0	0	0	0	0.8	0	0	0	0	0	1	0	0	2601, 3802, 3809
11/5/2012 12:06 PM	FA-18D	164898	1.3	1.3	0	1.3	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	
11/6/2012 9:36 AM	FA-18D	165885	1.3	1.3	0	1.3	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0	2201, 2503, 2504
11/7/2012 1:36 PM	FA-18D	165412	1.7	1.7	0	1.7	0	0	0	0	0	0	0.4	0	0	0	0	0	0	0	0	2506
11/9/2012 9:45 AM	FA-18D	165412	1.3	1.3	0	1.3	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0	2109, 2501, 3902, 6735
11/13/2012 2:52 PM	FA-18D	164896	2	2	0	2	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	3704, 4601
11/14/2012 2:31 PM	FA-18D	165891	1.6	1.6	0	1.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2201, 3402, 4601
11/15/2012 2:18 PM	FA-18D	165414	2.1	2.1	0	2.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
11/29/2012 6:48 PM	FA-18D	165684	1.3	1.3	0	1.3	0	0	0	0	1.3	1.3	1.3	0	0	0	0	0	0	0	0	2101, 3401, 3402, 4601
11/30/2012 2:18 PM	FA-18D	164690	1.3	1.3	0	1.3	0	0	0	0	0	0	0.3	0	0	0	1.3	0	1	0	0	2102, 2402
12/4/2012 6:45 PM	FA-18D	165684	1.5	1.5	0	1.5	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0	2304, 6735
12/5/2012 11:11 AM	FA-18D	165884	1.4	1.4	0	1.4	0	0	0	0	1.5	1.5	0.2	0	0	0	1.5	0	0	0	0	2309, 3208, 3802, 6103, 6707, 6710, 6735
																						3702, 6710

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12/7/2012 2:50 PM	FA-18D	165684	2.6	2.6	0	2.6	0	0	0	0	0	0	0.7	0	0	0	0	0	0	0	0	3800, 6111, 6735
12/12/2012 11:35 PM	FA-18D	165684	1.6	1.6	0	1.6	0	0	0	0	1.6	1.6	1.6	0	0	0	1.6	0	1	0	0	2304, 3106, 6704, 6723, 6735
12/13/2012 3:22 AM	FA-18D	165680	1.1	1.1	0	1.1	0	0	0	0	1.1	1.1	0.2	0	0	0	1.1	0	1	0	0	2310, 3105, 3106
12/14/2012 12:58 AM	FA-18D	165684	1.6	1.6	0	1.6	0	0	0	0	1.5	1.5	0.4	0	0	0	1.5	0	0	0	0	3106, 6704, 6710
12/14/2012 4:44 AM	FA-18D	165414	1.5	1.5	0	1.5	0	0	0	0	1.3	1.3	0.3	0	0	0	1.3	0	0	0	0	3106, 6733
12/17/2012 6:37 AM	FA-18D	164686	1	1	0	1	0	0	0	0	0	0	0.1	0	0	0	0	0	1	0	0	6723
12/17/2012 2:20 PM	FA-18D	164898	0.8	0.8	0	0.8	0	0	0	0	0	0	0.2	0	0	0	0	0	1	0	0	2102, 6723
12/20/2012 11:00 AM	FA-18D	165680	3.8	3.8	0	3.8	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	2204, 3800, 6111
12/26/2012 5:50 PM	FA-18D	165411	1.7	1.7	0	1.7	0	0	0	0	1.7	1.7	1.7	0	0	0	1.7	0	0	0	0	2102
12/27/2012 12:25 PM	FA-18D	165412	1.2	1.2	0	1.2	0	0	0	0	0	0	0.1	0	0	0	0	0	1	0	0	3201, 3202, 6735
1/4/2013 9:47 AM	FA-18D	164677	1.6	1.6	0	1.6	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	3703, 3704
1/8/2013 8:46 PM	FA-18D	165434	2.3	2.3	0	2.3	0	0	0	0	2.3	2.3	0	0	0	0	2.3	0	0	0	0	2202, 3705, 6111
1/10/2013 10:09 AM	FA-18D	164677	5	5	0	5	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	6111
1/17/2013 8:09 AM	FA-18D	164677	5.8	5.8	0	5.8	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	6111
2/5/2013 2:10 PM	FA-18D	165680	1.3	1.3	0	1.3	0	0	0	0	0	0	0.5	0	0	0	0	1	0	0	0	2101, 2302, 2303, 6103, 6730, 6735
2/6/2013 6:16 PM	FA-18D	164685	1.5	1.5	0	1.5	0	0	0	0	1.4	1.4	1.1	0.3	0	0	1.5	0	0	1	0	3609
2/7/2013 2:25 PM	FA-18D	165412	1.5	1.5	0	1.5	0	0	0	0	0	0	0.2	0	0	0	0	1	0	0	0	3103, 3104, 6702, 6705
2/11/2013 8:14 PM	FA-18D	165411	1.3	1.3	0	1.3	0	0	0	0	1.3	1.3	0	0	0	0	1.3	0	0	0	0	2201, 2202, 2404, 2509
2/12/2013 12:52 PM	FA-18D	165684	2.4	2.4	0	2.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2201, 3806, 3812, 6702, 6704, 6735
2/13/2013 12:46 PM	FA-18D	165684	2.4	2.4	0	2.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2201, 3103, 3104, 6735
2/14/2013 1:08 PM	FA-18D	165411	1.4	1.4	0	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3103, 6735
2/15/2013 11:48 AM	FA-18D	165684	2.6	2.6	0	2.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2404, 3104, 3810, 3811, 6735
2/20/2013 6:50 PM	FA-18D	165414	1.5	1.5	0	1.5	0	0	0	0	0	0	1.5	0	0	0	1.5	0	0	0	0	3812, 6207, 6735
2/22/2013 10:38 AM	FA-18D	165684	2	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3403, 6404
2/28/2013 8:45 AM	FA-18D	165411	1.4	1.4	0	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3602, 3603, 3604, 6402
3/1/2013 10:26 AM	FA-18D	165414	1.5	1.5	0	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3/1/2013 12:36 PM	FA-18D	165414	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2502
3/1/2013 3:50 PM	FA-18D	165414	0.9	0.9	0	0.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2503
3/2/2013 3:14 PM	FA-18D	165414	1.6	1.6	0	1.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2310, 3201, 3202, 3301
3/2/2013 6:56 PM	FA-18D	165414	1.4	1.4	0	1.4	0	0	0	0	1.4	1.4	1.4	0	0	0	1.4	0	0	0	0	3001, 3001, 3302
3/3/2013 2:11 PM	FA-18D	165414	1.4	1.4	0	1.4	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	2503, 2506, 2508
3/5/2013 10:56 AM	FA-18D	165411	1.1	1.1	0	1.1	0	0	0	0	0	0	0.2	0	0	0	0	1	0	0	0	2501
3/5/2013 12:23 PM	FA-18D	165411	1	1	0	1	0	0	0	0	0	0	0.2	0	0	0	0	0	1	0	0	2601
3/7/2013 11:43 AM	FA-18D	165414	1	1	0	1	0	0	0	0	0	0	0.9	0	0	0	0	1	0	0	0	2502
3/12/2013 8:19 PM	FA-18D	165409	1.2	1.2	0	1.2	0	0	0	0	1.2	1.2	1.2	0	0	0	1.2	0	0	0	0	2402, 3405, 6404
3/15/2013 10:10 AM	FA-18D	165684	1.3	1.3	0	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3704, 6405
3/19/2013 8:00 PM	FA-18D	165680	1.3	1.3	0	1.3	0	0	0	0	1.2	1.2	1.3	0	0	0	1.3	0	0	0	0	2306, 3705, 6407
4/3/2013 11:12 AM	FA-18D	165532	1.7	1.7	0	1.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2302, 3105, 6703, 6735
4/5/2013 11:21 AM	FA-18D	165537	0.7	0.7	0	0.7	0	0	0	0	0	0	0.4	0	0	0	0	0	1	0	0	
4/6/2013 2:49 PM	FA-18D	165532	1.4	1.4	0	1.4	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	2404
4/6/2013 9:30 AM	FA-18D	165532	1.5	1.5	0	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4/8/2013 1:29 PM	FA-18D	165532	1.1	1.1	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3804
4/8/2013 5:31 PM	FA-18D	165532	1.3	1.3	0	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4/7/2013 1:31 PM	FA-18D	165532	1.2	1.2	0	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2508
4/10/2013 2:25 PM	FA-18D	165412	1.1	1.1	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2503
4/17/2013 1:41 PM	FA-18D	165532	1.3	1.3	0	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3304, 3400
4/18/2013 2:57 PM	FA-18D	165532	3	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2201, 3401, 3402, 3403
4/18/2013 6:40 PM	FA-18D	165532	1.7	1.7	0	1.7	0	0	0	0	1.2	1.2	1.2	0	0	0	1.2	0	0	0	0	3302, 3404, 3406
4/19/2013 2:57 PM	FA-18D	165532	3.2	3.2	0	3.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4/19/2013 6:40 PM	FA-18D	165532	1.7	1.7	0	1.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4/20/2013 3:10 PM	FA-18D	165532	1.1	1.1	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3404, 4501, 4601
4/20/2013 7:30 PM	FA-18D	165532	2	2	0	2	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2302, 3404, 4404, 4402
4/21/2013 1:47 PM	FA-18D	165532	0.5	0.5	0	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2102
4/26/2013 1:48 PM	FA-18D	165532	0.5	0.5	0	0.5	0	0	0	0	0	0	0.2	0	0	0	0	1	0	0	0	2102
5/8/2013 11:30 AM	FA-18D	165412	0.7	0.7	0	0.7	0	0	0	0	0	0	0	0.4	0	0	0	0	0	3	0	2101
5/9/2013 1:00 PM	FA-18D	165412	0.9	0.9	0	0.9	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	2503
5/9/2013 12:06 PM	FA-18D	165411	0.9	0.9	0	0.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2502
5/11/2013 10:40 PM	FA-18D	165680	1.2	1.2	0	1.2	0	0	0	0	1.1	1.1	1.2	0	0	0	1.2	0	1	0	0	3104, 3400, 6702, 6735
5/14/2013 4:39 PM	FA-18D	165409	1.5	1.5	0	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2310, 3102, 3103, 6713, 6735
5/15/2013 12:30 PM	FA-18D	165532	1.3	1.3	0	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2503
5/16/2013 8:27 PM	FA-18D	165532	1.7	1.7	0	1.7	0	0	0	0	1.7	1.7	1.7	0	0	0	1.7	1	0	0	0	
5/18/2013 9:31 AM	FA-18D	165546	0.6	0.6	0	0.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5/19/2013 10:51 AM	FA-18D	165680	1.2	1.2	0	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3103, 3104
5/19/2013 1:31 PM	FA-18D	165686	1.5	1.5	0	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2304, 3800, 4302, 6735
5/20/2013 10:13 AM	FA-18D	165680	2.4	2.4	0	2.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2201, 3103, 3104, 6701, 6710, 6735
5/21/2013 9:08 PM	FA-18D	165680	1.9	1.9	0	1.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2204, 3804, 3810, 3811, 6702, 6735
5/25/2013 12:03 PM	FA-18D	165532	1.7	1.7	0	1.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2201, 3702, 6735
6/3/2013 11:58 AM	FA-18D	165532	0.8	0.8	0	0.8	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	2201
6/3/2013 2:55 PM	FA-18D	165532	0.6	0.6	0	0.6	0	0	0	0	0	0	0.1	0	0	0	0	1	0	0	0	2501
6/4/2013 11:50 AM	FA-18D	165414	0.7	0.7	0	0.7	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	2101
6/4/2013 3:06 PM	FA-18D	165414	0.8	0.8	0	0.8	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	2501
6/5/2013 11:49 AM	FA-18D	165411	0.9	0.9	0	0.9	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	2501

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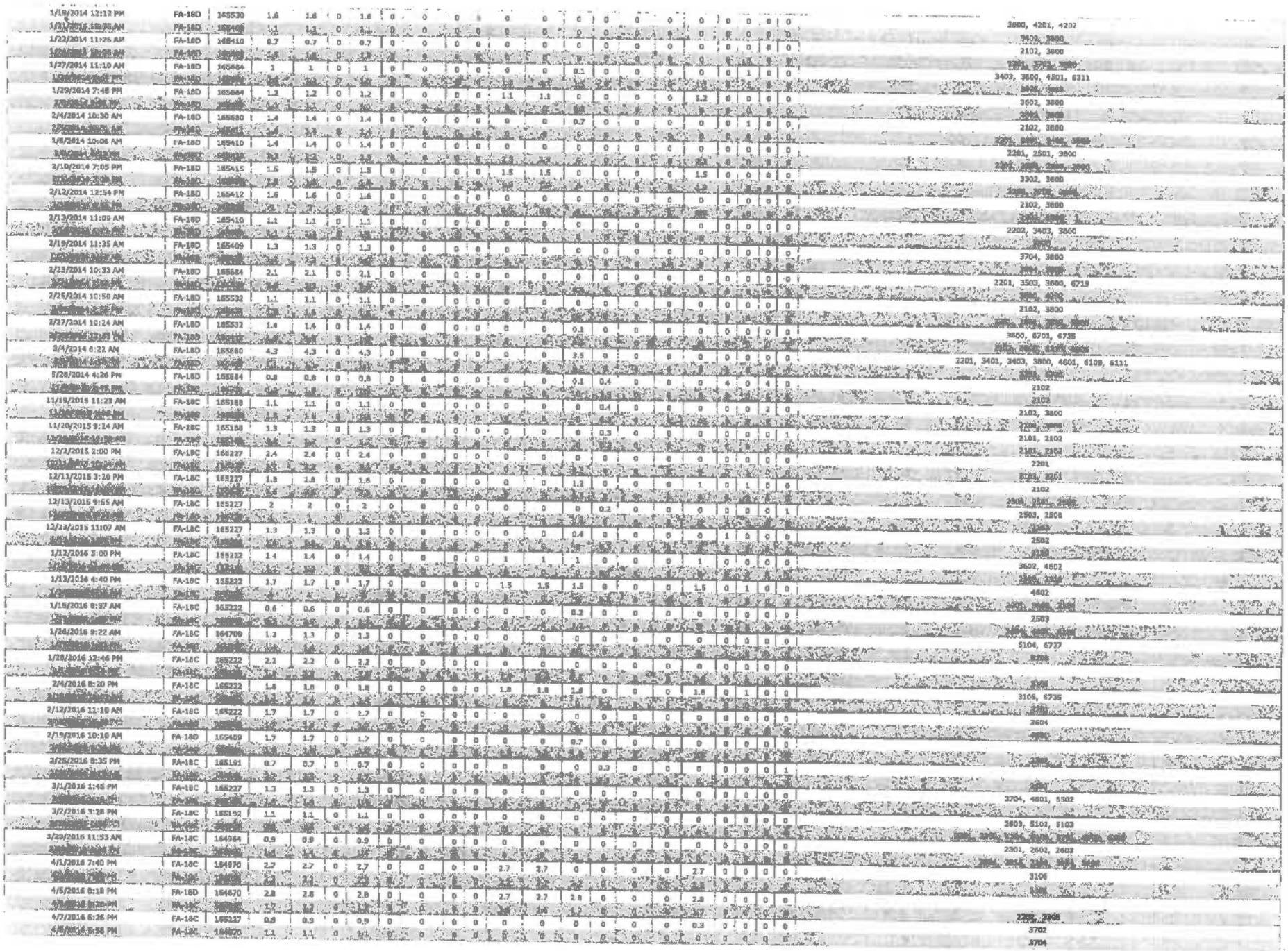
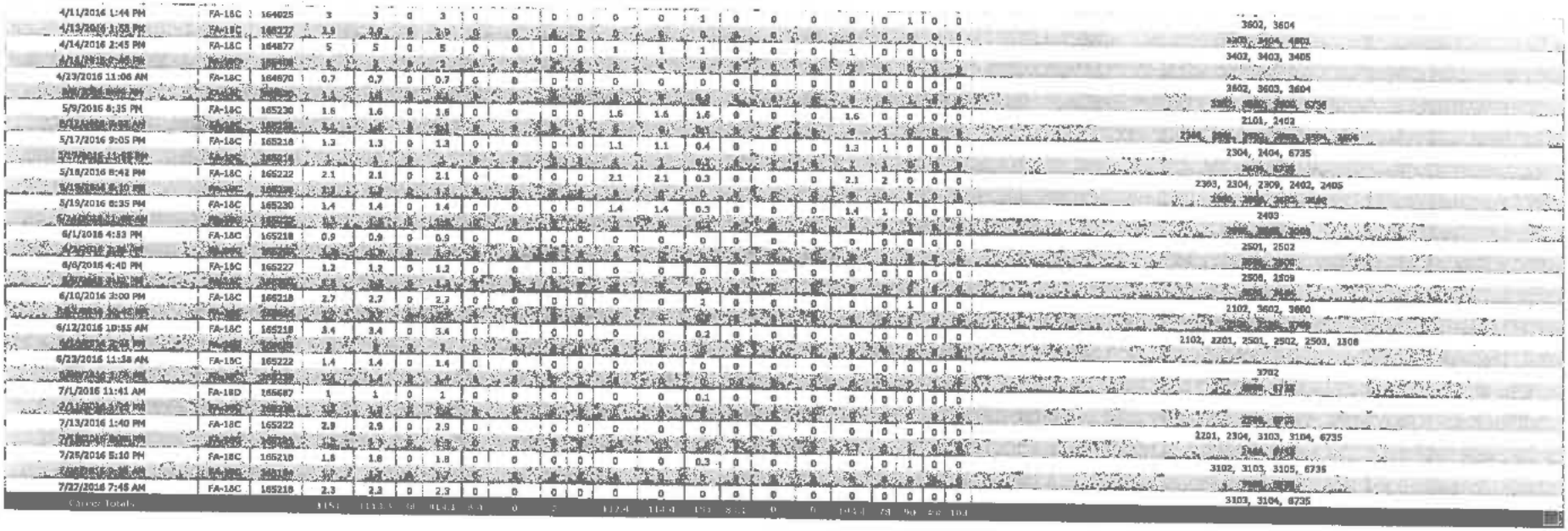
6/5/2013 4:35 PM	FA-18D	165417	0.9	0.9	0	0.9	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	2502
6/7/2013 12:41 PM	FA-18D	165411	1.3	1.3	0	1.3	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0	0	2504
6/10/2013 12:58 PM	FA-18D	165414	1.2	1.2	0	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2506
6/11/2013 1:00 PM	FA-18D	165414	1.1	1.1	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3504
6/13/2013 6:32 PM	FA-18D	165414	1.3	1.3	0	1.3	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	3402
6/19/2013 6:56 PM	FA-18D	165414	1.3	1.3	0	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2502
6/21/2013 3:46 PM	FA-18D	165412	2.2	2.2	0	2.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3602, 3604, 4601
6/25/2013 2:09 PM	FA-18D	165404	1.1	1.1	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2101
6/26/2013 4:21 PM	FA-18D	165412	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2504
6/27/2013 12:00 PM	FA-18D	165414	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2501
6/27/2013 3:50 PM	FA-18D	165414	1.3	1.3	0	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3404
7/2/2013 3:46 PM	FA-18D	165412	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3501
7/3/2013 10:44 AM	FA-18D	164651	1.4	1.4	0	1.4	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0	0	2508
7/15/2013 8:43 AM	FA-18D	164986	0.8	0.8	0	0.8	0	0	0	0	0	0	0.2	0	0	0	0	1	0	0	0	0	2502
7/16/2013 3:00 PM	FA-18D	164986	0.8	0.8	0	0.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7/17/2013 3:18 PM	FA-18D	164698	0.9	0.9	0	0.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2501
7/18/2013 11:42 AM	FA-18D	164957	0.7	0.7	0	0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2501
7/19/2013 12:11 PM	FA-18D	164954	0.8	0.8	0	0.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2502
7/20/2013 9:01 AM	FA-18D	164957	0.8	0.8	0	0.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2503
7/22/2013 11:57 AM	FA-18D	164957	0.9	0.9	0	0.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7/23/2013 3:38 PM	FA-18D	164699	0.9	0.9	0	0.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7/24/2013 9:48 AM	FA-18D	164699	0.8	0.8	0	0.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
7/24/2013 11:56 AM	FA-18D	164937	1	1	0	1	0	0	0	0	0	0	0.3	0	0	0	0	0.3	0	1	0	0	2504
7/31/2013	FA-18D	-	2.2	2.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2503, 6109
8/31/2013	FA-18D	-	18.1	18.1	0	18.1	0	0	0	0	0	0	1.3	0.2	1	0	0	0	0	0	0	0	
9/30/2013	FA-18D	-	8.1	8.1	0	8.1	0	0	0	0	0	0	0.4	0	1	0	0	0	0	0	0	0	
10/14/2013 2:30 PM	FA-18D	165415	1.5	1.5	0	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3301, 3302, 3800, 6735
10/15/2013 3:03 PM	FA-18D	165415	1.5	1.5	0	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2101, 2201, 3800
10/16/2013 10:38 AM	FA-18D	165532	1.3	1.3	0	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3800
10/20/2013 3:10 PM	FA-18D	165409	1.6	1.6	0	1.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3301, 3402, 3800
10/21/2013 6:55 PM	FA-18D	165410	1.7	1.7	0	1.7	0	0	0	0	1.7	1.7	1.7	0	0	0	1.7	0	1	0	0	0	2102, 2202, 2402, 3402, 3605, 3800
10/22/2013 1:26 PM	FA-18D	165847	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2605, 3800
10/23/2013 1:56 PM	FA-18D	165847	1.2	1.2	0	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2501, 2502, 3800
10/24/2013 1:24 PM	FA-18D	165813	0.8	0.8	0	0.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2502, 3800, 6735
10/27/2013 9:21 AM	FA-18D	165415	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2501, 2502, 2503, 2504, 3800
10/28/2013 1:02 PM	FA-18D	165532	2.5	2.5	0	2.5	0	0	0	0	0	0	1.3	0	0	0	0	0	1	0	0	0	1201, 3101, 3102, 3103, 3104, 3800, 6735
10/31/2013 10:33 AM	FA-18D	164698	1.1	1.1	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3800, 4001
11/4/2013 11:16 AM	FA-18D	165834	0.8	0.8	0	0.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2102, 3800
11/4/2013 3:27 PM	FA-18D	165687	1.3	1.3	0	1.3	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0	0	3201, 3800, 4202, 6103, 6735
11/5/2013 10:20 AM	FA-18D	165830	2.1	2.1	0	2.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3605, 4306, 4302
11/7/2013 11:04 AM	FA-18D	165687	2.2	2.2	0	2.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2201, 3800, 4201, 4202
11/13/2013 1:16 PM	FA-18D	165990	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2602, 3800, 6735
11/18/2013 12:04 PM	FA-18D	165418	1.1	1.1	0	1.1	0	0	0	0	0	0	0.3	0	0	0	0	0	1	0	0	0	3800
11/19/2013 2:00 PM	FA-18D	165430	0.8	0.8	0	0.8	0	0	0	0	0	0	0.5	0	0	0	0	0	0	0	0	0	3800
11/24/2013 1:21 PM	FA-18D	165415	1.5	1.5	0	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2302, 2303, 3800, 6735
11/26/2013 12:36 PM	FA-18D	165830	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2101, 3800
12/1/2013 6:13 PM	FA-18D	165415	1.3	1.3	0	1.3	0	0	0	0	1.3	1.3	1.3	0	0	0	1.3	0	0	0	0	0	2306, 2402, 3703, 3705, 3800, 6735
12/2/2013 2:36 PM	FA-18D	165414	1.1	1.1	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3700, 3800, 6604
12/4/2013 9:18 AM	FA-18D	165887	1.5	1.5	0	1.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2201, 3800, 4202, 6103
12/5/2013 10:46 AM	FA-18D	165804	1.7	1.7	0	1.7	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0	0	0	2201, 3800, 3802, 3804, 3808
12/9/2013 9:20 AM	FA-18D	165415	2.2	2.2	0	2.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2102, 2201, 3800, 4601
12/9/2013 1:34 PM	FA-18D	165418	0.8	0.8	0	0.8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2102, 3800
12/10/2013 7:16 PM	FA-18D	165532	3.2	3.2	0	3.2	0	0	0	0	3.2	3.2	3.2	0	0	0	3.2	0	1	0	0	0	2202, 3101, 3102, 3103, 3104, 3106, 3800, 6703, 6706, 6735
12/11/2013 1:41 PM	FA-18D	164699	1.7	1.7	0	1.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3800
12/12/2013 5:34 PM	FA-18D	165415	1.6	1.6	0	1.6	0	0	0	0	1.6	1.6	1.6	0	0	0	1.6	0	0	0	0	0	3800, 3804, 3807, 3808
12/13/2013 10:13 AM	FA-18D	165890	1.3	1.3	0	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3102, 3800
12/16/2013 9:39 AM	FA-18D	165684	2.6	2.6	0	2.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2201, 3402, 3800, 4601, 6109, 6111
12/17/2013 8:48 AM	FA-18D	165890	3.6	3.6	0	3.6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3140, 3204, 3606, 4601
12/19/2013 9:17 AM	FA-18D	165411	2.3	2.3	0	2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2201, 3101, 3103, 3800, 6735
12/23/2013 10:25 AM	FA-18D	165684	0.9	0.9	0	0.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3800, 3900
12/29/2013 1:45 PM	FA-18D	165409	2.4	2.4	0	2.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3800, 4402
12/30/2013 10:32 AM	FA-18D	165890	1.3	1.3	0	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3101, 3800
1/3/2014 8:44 PM	FA-18D	164898	1.5	1.5	0	1.5	0	0	0	0	1.4	1.4	0.3	0	0	0	1.5	0	1	0	0	0	3103, 3800
1/6/2014 10:39 AM	FA-18D	165834	0.8	0.8	0	0.8	0	0	0	0	0	0	0.4	0	0	0	0	0	1	0	0	0	3800
1/8/2014 10:25 AM	FA-18D	165890	1.1	1.1	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2201, 2503, 3800
1/8/2014 2:27 PM	FA-18D	165890	1.2	1.2	0	1.2	0	0	0	0	0	0	0	0.3	0	0	0	0	0	0	0	1	3702, 3800
1/9/2014 10:50 AM	FA-18D	164898	0.8	0.8	0	0.8	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	0	2503, 3800
1/9/2014 2:13 PM	FA-18D	164898	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2605, 3800, 3600
1/12/2014 10:14 AM	FA-18D	165409	1.6	1.6	0	1.6	0	0	0	0	0	0	0.3	0	0	0	0	0	1	0	0	0	3102, 3104, 3800, 3804
1/13/2014 2:21 PM	FA-18D	165890	1.1	1.1	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3803, 3800
1/14/2014 10:24 AM	FA-18D	165409	1.4	1.4	0	1.4	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	1	3800, 3802, 3804
1/15/2014 4:51 PM	FA-18D	165410	0.8	0.8	0	0.8	0	0	0	0	0	0	0.4	0	0	0	0.8	0	1	0	0	0	2102, 2402, 3800

ENCLOSURE (20)



ENCLOSURE (20)



4/11/2016 1:44 PM	FA-18C	164025	3	3	0	3	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0
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4/14/2016 2:45 PM	FA-18C	164877	5	5	0	5	0	0	0	0	1	1	1	0	0	0	1	0	0	0	0	
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4/23/2016 11:06 AM	FA-18C	164870	0.7	0.7	0	0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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5/9/2016 8:35 PM	FA-18C	165230	1.6	1.6	0	1.6	0	0	0	0	1.6	1.6	1.6	0	0	0	1.6	0	0	0	0	
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5/17/2016 9:05 PM	FA-18C	165218	1.3	1.3	0	1.3	0	0	0	0	1.1	1.1	0.4	0	0	0	1.3	1	0	0	0	
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5/18/2016 8:42 PM	FA-18C	165222	2.1	2.1	0	2.1	0	0	0	0	2.1	2.1	0.3	0	0	0	2.1	2	0	0	0	
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5/19/2016 8:35 PM	FA-18C	165230	1.4	1.4	0	1.4	0	0	0	0	1.4	1.4	0.3	0	0	0	1.4	1	0	0	0	
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6/1/2016 4:53 PM	FA-18C	165218	0.9	0.9	0	0.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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6/6/2016 4:40 PM	FA-18C	165227	1.2	1.2	0	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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6/10/2016 3:00 PM	FA-18C	165218	2.7	2.7	0	2.7	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	
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6/12/2016 10:55 AM	FA-18C	165218	3.4	3.4	0	3.4	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	
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6/23/2016 11:38 AM	FA-18C	165222	1.4	1.4	0	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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7/1/2016 11:41 AM	FA-18D	165687	1	1	0	1	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	
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7/13/2016 1:40 PM	FA-18C	165222	2.9	2.9	0	2.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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7/25/2016 5:10 PM	FA-18C	165218	1.8	1.8	0	1.8	0	0	0	0	0	0	0.3	0	0	0	0	0	1	0	0	
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7/27/2016 7:45 AM	FA-18C	165218	2.3	2.3	0	2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
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ENCLOSURE (20)

MAJ NORTON FLIGHT HOURS 20151202-20160727

Date	Model	BUNO	TPT	FPT	CPT	[illegible]	[illegible]	COMBAT	[illegible]	[illegible]	[illegible]	[illegible]	ACT	SIM	[illegible]	[illegible]	NITE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12/2/2015 2:00 PM	FA-18C	165227	2.4	2.4	0	2.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2201
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12/11/2015 3:20 PM	FA-18C	165227	1.8	1.8	0	1.8	0	0	0	0	0	0	1.2	0	0	0	1	0	1	0	0	2102
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12/13/2015 9:55 AM	FA-18C	165227	2	2	0	2	0	0	0	0	0	0	0	0.2	0	0	0	0	0	0	1	2503, 2508
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
12/23/2015 11:07 AM	FA-18C	165227	1.3	1.3	0	1.3	0	0	0	0	0	0	0.4	0	0	0	0	1	0	0	0	2502
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1/12/2016 5:00 PM	FA-18C	165222	1.4	1.4	0	1.4	0	0	0	0	1	1	1	0	0	0	1	0	0	0	0	3602, 4602
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1/13/2016 4:40 PM	FA-18C	165222	1.7	1.7	0	1.7	0	0	0	0	1.5	1.5	1.5	0	0	0	1.5	0	1	0	0	4602
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1/15/2016 8:37 AM	FA-18C	165222	0.6	0.6	0	0.6	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	2503
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1/26/2016 9:22 AM	FA-18C	164709	1.3	1.3	0	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6104, 6727
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
1/28/2016 12:46 PM	FA-18C	165222	2.2	2.2	0	2.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2/4/2016 6:20 PM	FA-18C	165222	1.8	1.8	0	1.8	0	0	0	0	1.8	1.8	1.8	0	0	0	1.8	0	1	0	0	3106, 6735
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2/12/2016 11:10 AM	FA-18C	165222	1.7	1.7	0	1.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3604
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2/19/2016 10:10 AM	FA-18D	165409	1.7	1.7	0	1.7	0	0	0	0	0	0	0.7	0	0	0	0	0	0	0	0	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2/25/2016 6:35 PM	FA-18C	165191	0.7	0.7	0	0.7	0	0	0	0	0	0	0	0.3	0	0	0	0	0	0	1	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3/1/2016 1:45 PM	FA-18C	165227	1.3	1.3	0	1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3704, 4601, 6502
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3/2/2016 3:28 PM	FA-18C	165192	1.1	1.1	0	1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2603, 5102, 5103
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
3/29/2016 11:53 AM	FA-18C	164954	0.9	0.9	0	0.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2302, 2602, 2603
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4/1/2016 7:40 PM	FA-18C	164970	2.7	2.7	0	2.7	0	0	0	0	2.7	2.7	0	0	0	0	2.7	0	0	0	0	3108
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4/5/2016 6:18 PM	FA-18D	164670	2.8	2.8	0	2.8	0	0	0	0	2.7	2.7	2.8	0	0	0	2.8	0	0	0	0	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4/7/2016 6:36 PM	FA-18C	165227	0.9	0.9	0	0.9	0	0	0	0	0	0	0	0	0	0	0.3	0	0	0	0	3702
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4/11/2016 1:44 PM	FA-18C	164025	3	3	0	3	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	3602, 3604
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4/14/2016 2:45 PM	FA-18C	164877	5	5	0	5	0	0	0	0	1	1	1	0	0	0	1	0	0	0	0	3402, 3403, 3405
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
4/23/2016 11:06 AM	FA-18C	164970	0.7	0.7	0	0.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3602, 3603, 3604
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5/9/2016 8:35 PM	FA-18C	165230	1.6	1.6	0	1.6	0	0	0	0	1.6	1.6	1.6	0	0	0	1.6	0	0	0	0	2101, 2402
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5/17/2016 9:05 PM	FA-18C	165218	1.3	1.3	0	1.3	0	0	0	0	1.1	1.1	0.4	0	0	0	1.3	1	0	0	0	2304, 2404, 6735
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5/18/2016 8:42 PM	FA-18C	165222	2.1	2.1	0	2.1	0	0	0	0	2.1	2.1	0.3	0	0	0	2.1	2	0	0	0	2303, 2304, 2309, 2402, 2405
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
5/19/2016 8:35 PM	FA-18C	165230	1.4	1.4	0	1.4	0	0	0	0	1.4	1.4	0.3	0	0	0	1.4	1	0	0	0	2403
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6/1/2016 4:53 PM	FA-18C	165218	0.9	0.9	0	0.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2501, 2503
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6/6/2016 4:46 PM	FA-18C	165227	1.2	1.2	0	1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2508, 2509
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6/10/2016 3:00 PM	FA-18C	165218	2.7	2.7	0	2.7	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	2102, 3602, 3800
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6/12/2016 10:55 AM	FA-18C	165218	3.4	3.4	0	3.4	0	0	0	0	0	0	0.2	0	0	0	0	0	0	0	0	2102, 2201, 2501, 2502, 2503, 2506
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
6/23/2016 11:36 AM	FA-18C	165222	1.4	1.4	0	1.4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3702
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7/1/2016 11:41 AM	FA-18D	165647	1	1	0	1	0	0	0	0	0	0	0.1	0	0	0	0	0	0	0	0	
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7/13/2016 1:40 PM	FA-18C	165222	2.9	2.9	0	2.9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2201, 2304, 3103, 3104, 6735
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7/25/2016 5:10 PM	FA-18C	165218	1.8	1.8	0	1.8	0	0	0	0	0	0	0.3	0	0	0	0	0	1	0	0	3102, 3103, 3105, 6735
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
7/27/2016 7:45 AM	FA-18C	165218	2.3	2.3	0	2.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3103, 3104, 6735
Date Range Totals	FA-18C		[illegible]	[illegible]	0	[illegible]	0	0	2	0	[illegible]	[illegible]	[illegible]	2.1	0	0	[illegible]	16	15	2	[illegible]	

ENCLOSURE (20)

Monthly Individual Flight Activity Report

	TMS	BUNO	NAL	TMR	TPT	FPT	CPT	PIC	SCT	ACT	SIM	NITE	TNVG	NVG	HLL	LLL	CBT	T&R
2	FA-18C	165227	GB70VOE	2K4	2.4	2.4		2.4										2201 (2102, 2201)
11	FA-18C	165227	GB70VP4	1A7 2J2	3.2	3.2		3.2		.5								2102, 2201 (2102, 2201)
11	FA-18C	165227	GB70VP5	1A7 2J2	1.8	1.8		1.8		1.2		1						2102 (2102)
12	FA-18C	165227	GB70VP6	1A7 1A6 2J2	3.5	3.5		3.5		.5								2304, 2501, 2502 (2102, 2304, 2501, 2502)
13	FA-18C	165227	GB70VP7	1A6 2J2	2	2		2			.2							2503, 2508 (2102, 2503, 2508)
23	FA-18C	165227	GB70VQT	1A6 2J2	1	1		1		.4								2102 (2102)
23	FA-18C	165227	GB70VQU	1A6 2J2	1.3	1.3		1.3		.4								2502 (2102, 2502)

Totals This Month	TPT	FPT	CPT	ACDR	SCT	ACT	SIM	NITE	TNVG	NVG	HLL	LLL	CMBT
	15.2	15.2		15.2		3	.2	1					

Brought Forward	TPT	FPT	CPT	ACDR	SCT	ACT	SIM	NITE	TNVG	NVG	HLL	LLL	CMBT
1027.6	7	7		7			3.1		84.1	84.1			

Total To Date	TPT	FPT	CPT	ACDR	SCT	ACT	SIM	NITE	TNVG	FWNVG	HLL	LLL	CMBT
1042.8	22.2	22.2		22.2		3	3.3	1	84.1	84.1			

Signature

Date

ENCLOSURE (20)

Approaches

	1	2	3	4	A	B	C	NFNS	PSE
11		1							
11		1							
12		2							
13						1			
23	1								
23	1								
	2	4				1			

Landings

	6	F
2	1	
11	1	
11		1
12	3	
13	2	
23	1	
23	1	
	9	1

_____ _____

nature Date

ENCLOSURE (20)

NAVFLIRS-3

Monthly Individual Flight Activity Report

VMFA-232 (M01232) [illegible] 2016

Maj Norton R SVC: 3

DAY	BUNO	NAV	MMR	TPT	FPT	CPT	PIC	SCT	ACT	SIM	NTE	TNVG	NVG	HLL	LLL	CMBT	REMARKS
12	FA-18C	165222	GB70VRL	1A6 2J2	1.8	1.8		1.8			.3							2102 (2102)
12	FA-18C	165222	GB70VRM	1A6 2J2	1.4	1.4		1.4		1		1	1	1				3602, 4602 (2102, 3602, 4602)
13	FA-18C	165222	GB70VRN	1A7 2J2	1.2	1.2		1.2			.2							2308, 2310 (2102, 2308, 2310)
13	FA-18C	165222	GB70VRO	2J2 2K4	1.7	1.7		1.7		1.5		1.5	1.5	1.5				4602 (2102, 4602)
14	FA-18C	165222	GB70VRP	1A7 2J2	4	4		4			.5							2201, 3103, 3104 (2102, 2201, 3101, 3103, 3104)
15	FA-18C	165222	GB70VRQ	1A6 2J2	.6	6		.6		2								2503 (2102, 2503)
19	FA-18C	165192	GB70VS0	1A6 2J2	2.3	2.3		2.3		2.2								3604, 4601, 6109 (2102, 2201, 4601, 6109)
26	FA-18C	164709	3XWXB7E	1A6 2J2	1.3	1.3		1.3										6104, 6727 (2102, 6104, 6727)
27	FA-18C	165222	GB70VT7	1A7 2J2	1.4	1.4		1.4		.1								3103 (2102, 3101, 3103)
28	FA-18C	165222	GB70VTA	1A7 2J2	2.2	2.2		2.2										

Totals This Month	TPT	FPT	CPT	AC/DR	SCT	ACT	SIM	NTE	TNVG	NVG	HLL	LLL	CMBT
	17.9	17.9		17.9		5	1	2.5	2.5	2.5			

Brought Forward	TPT	FPT	CPT	AC/DR	SCT	ACT	SIM	NTE	TNVG	NVG	HLL	LLL	CMBT
1042.8	22.2	22.2		22.2		3	3.3	1	84.1	84.1			

Total To Date	TPT	FPT	CPT	AC/DR	SCT	ACT	SIM	NTE	TNVG	NVG	HLL	LLL	CMBT
1060.7	40.1	40.1		40.1		8	4.3	3.5	86.6	86.6			

Signature

Date

ENCLOSURE (20)

Approaches

	1	2	3	4	A	B	C	NENS	PSE
12						1			
13						1			
13		1							
14						2			
19	1								
27	1								
	2	**1**				**4**			

Landings

	D	F
12	1	
12		1
13	1	
13		1
14	2	
15	1	
19	1	
26	1	
27	1	
28	1	
	9	**2**

Signature Date

ENCLOSURE (20)

DAY	MDS	BUNO	NAV	TIME	TPT	FPT	CPT	ACDR	SCT	ACT	SIM	NTE	TNVG	NVG	HLL	LLL	CMBT	REMARKS
1	FA-18C	165192	GB70VTO	1A7 2J2	1.5	1.5		1.5		1.5		1.5	1.4	1.4				3106 (2102, 3106)
4	FA-18C	165222	GB70VU0	1A7 2J2	1.8	1.8		1.8		1.8		1.8	1.8	1.8				3106, 8735 (2102, 3106)
10	FA-18C	165222	GB70VUH	1A7 2J2	1.4	1.4		1.4			.2							3202 (2102, 3201, 3202)
12	FA-18C	165222	GB70VUU	1A6 2J2	1.7	1.7		1.7										3604 (2102)
17	FA-18C	165222	GB70VUZ	1A6 2J2	1.7	1.7		1.7										4601 (2102, 4601)
19	FA-18D	165409	GFA0HUT	1A7 2J2	1.7	1.7		1.7		.7								
24	FA-18C	165191	GB70VW6	1A6	1.9	1.9		1.9		1.9		1.9	1.9	1.9				2202 (2102, 2201, 2202)
25	FA-18C	165191	GB70VWE	2J2	.7	.7		.7			.3							
26	FA-18C	165191	GB70VWG	1A7 2J2	2.7	2.7		2.7			.3							2602 (2102, 2304, 2602)

Totals This Month	TPT	FPT	CPT	ACDR	SCT	ACT	SIM	NTE	TNVG	NVG	HLL	LLL	CMBT
	15.1	15.1		15.1		5.9	.8	5.2	5.1	5.1			

Totals Forward	TPT	FPT	CPT	ACDR	SCT	ACT	SIM	NTE	TNVG	NVG	HLL	LLL	CMBT
1060.7	40.1	40.1		40.1		8	4.3	3.5	86.6	86.6			

Totals To Date	TPT	FPT	CPT	ACDR	SCT	ACT	SIM	NTE	TNVG	FP/NVG	HLL	LLL	CMBT
1075.8	55.2	55.2		55.2		13.9	5.1	8.7	91.7	91.7			

Signature

Date

ENCLOSURE (20)

Approaches

	1	2	3	4	A	B	C	NFNS	PSE
1		1							
4		1							
10					1				
24		1							
25						1			
26						2			
		3			1	3			

Landings

	G	T
1		1
4		1
10	1	
12	1	
17	1	
18	1	
24		1
25	1	
26	2	
	7	3

Signature Date

ENCLOSURE (20)

Monthly Individual Flight Activity Report

Maj Norton R SVC: 3

	TMS	BUNO	[illegible]	TMR	TPT	FPT	CPT	[illegible]	SCT	ACT	SIM	NITE	TNVG	NVG	HLL	LLL	CBT	[illegible]
1	FA-18C	165227	GB70VX1	1A6	1.3	1.3		1.3										3704, 4601, 6502 (2102, 2310, 2507, 2509, 3704, 4601, 6502)
2	FA-18C	165186	GB70VXE	1A7 2J2	1.4	1.4		1.4										
2	FA-18C	165192	GB70VXF	1A7 2J2	1.1	1.1		1.1										2603, 5102, 5103 (2102, 2302, 2304, 2603, 5102, 5103)
28	FA-18C	164970	FAB0QK1	1A7	1.3	1.3		1.3										2201, 2302, 2304, 6103, 6701, 6702, 6735 (2102, 2201, 2302, 2304, 6103, 6701, 6702)
29	FA-18C	164964	FE60D4Y	1A7	.9	.9		.9										2302, 2602, 2603 (2102, 2302, 2304, 2602, 2603)
30	FA-18C	165227	GB70W0Z	1A7	1.4	1.4		1.4										2304, 2310, 3103, 3104, 3105 (2102, 2304, 2310, 3101, 3103, 3104, 3105)

Totals This Month	TPT	FPT	CPT	ACDR	SCT	ACT	SIM	NITE	TNVG	NVG	HLL	LLL	CMBT
	7.4	7.4		7.4									

Brought Forward	TPT	FPT	CPT	ACDR	SCT	ACT	SIM	NITE	TNVG	NVG	HLL	LLL	CMBT
1075.8	55.2	55.2		55.2		13.9	5.1	8.7	91.7	91.7			

Total To Date	TPT	FPT	CPT	ACDR	SCT	ACT	SIM	NITE	TNVG	FWNVG	HLL	LLL	CMBT
1083.2	62.6	62.6		62.6		13.9	5.1	8.7	91.7	91.7			

Signature

Date

ENCLOSURE (20)

Approaches

1	2	3	4	A	B	C	NFNS	PSE

Landings

	6
1	1
2	1
2	1
28	1
29	1
30	1
	6

Signature Date

ENCLOSURE (20)

NAVFLIRS-3

Monthly Individual Flight Activity Report

VMFA-232 (M01232) 4 2016

Maj Norton R SVC: 3

	TMS	BUNO	NAL	TMR	TPT	FPT	CPT	PIC	SCT	ACT	SIM	NITE	TNVG	NVG	HLL	LLL	CBT	T&R
1	FA-18C	164970	FAB0QKM	1A7	2.7	2.7		2.7				2.7	2.7	2.7				3106 (2102, 3106)
2	FA-18C	164025	GQ20GU7	1A7	2.2	2.2		2.2		2.2		2.2	2.2	2.2				3106 (2102, 3106)
5	FA-18D	164670	FA30CZD	1A7	2.8	2.8		2.8		2.8		2.8	2.7	2.7				
6	FA-18C	164025	GQ20GUA	1A7	1.7	1.7		1.7		1.7		1.7	1.6	1.6				2202, 3203 (2102, 2201, 2202, 3201, 3203)
7	FA-18C	165227	GB70W1U	1A7	.9	.9		.9				.3						3702 (2102, 2304, 2507, 2509, 3702)
8	FA-18C	164970	FAB0QLA	1A7	1.1	1.1		1.1										3704 (2102, 2310, 2507, 2509, 3704)
11	FA-18C	164025	GQ20GUC	1A6	3	3		3		1								3602, 3604 (2102, 3602)
13	FA-18C	165227	GB70W27	1A6	2.9	2.9		2.9										2201, 3404, 4501 (2102, 2201, 3403, 3404, 4501)
14	FA-18C	164877	FAB0QM7	1A6	5	5		5		1		1	1	1				3402, 3403, 3405 (2102, 3402, 3403, 3405)
16	FA-18D	165409	GFA0H5	1A7	2	2		2				2	2	2	2			
23	FA-18C	164970	FAB0QN7	1A6	.7	.7		.7										3602, 3603, 3604 (2102, 3602, 3604)

Totals This Month	TPT	FPT	CPT	ACDR	SCT	ACT	SIM	NITE	TNVG	NVG	HLL	LLL	CMBT
	25	25		25		8.7		12.7	14.2	12.2	2		

Brought Forward	TPT	FPT	CPT	ACDR	SCT	ACT	SIM	NITE	TNVG	NVG	HLL	LLL	CMBT
1083.2	62.6	62.6		62.6		13.9	5.1	8.7	91.7	91.7			

Total To Date	TPT	FPT	CPT	ACDR	SCT	ACT	SIM	NITE	TNVG	FWNVG	HLL	LLL	CMBT
1108.2	87.6	87.6		87.6		22.6	5.1	21.4	105.9	103.9	2		

Signature

Date

ENCLOSURE (20)

Approaches

	1	2	3	4	A	B	C	NPNS	PSE
11		1							
		1							

Landings

	G	F
1		1
2		1
5		1
6		1
7		1
8	1	
11	1	
13	1	
14	1	1
16		1
23	1	
	5	7

Signature Date

ENCLOSURE (20)

Maj Norton R SVC: 3

	TMS	BUNO	NSI	TDC	TPT	PPT	CPT	ACDR	SCT	ACT	SIM	NITE	TNVG	NVG	HLL	LLL	CMBT	T&R
5	FA-18C	165230	GB70W4O	1A7 2J2	1.1	1.1		1.1		.3								3202, 3502, 3503, 6735 (2102, 3201, 3202, 3502, 3503)
9	FA-18C	165230	GB70W51	1A6 2J2	1.6	1.6		1.6		1.6		1.6	1.6	1.6				2101, 2402 (2101, 2102, 2402)
12	FA-18C	165222	GB70W5E	1A7 2J2	1.1	1.1		1.1		.1								2308, 2501, 2502, 2503, 2504, 2506 (2102, 2308, 2501, 2502, 2503, 2504, 2506)
17	FA-18C	165218	GB70W62	1A7 2J2	1.3	1.3		1.3		.4		1.3	1.1	1.1				2304, 2404, 6735 (2102, 2304, 2402, 2404)
17	FA-18C	165218	GB70W63	1A7 2J2	1	1		1		.2		1	1	1				2404, 6735 (2102, 2304, 2402, 2404)
18	FA-18C	165222	GB70W6B	1A7 2J2	2.1	2.1		2.1		.3		2.1	2.1	2.1				2303, 2304, 2309, 2402, 2405 (2102, 2303, 2304, 2309, 2402, 2405)
19	FA-18C	165230	GB70W6H	1A7	1.3	1.3		1.3										2302, 2306, 2602, 2603 (2102, 2302, 2304, 2306, 2602, 2603)
19	FA-18C	165230	GB70W6I	1A6	1.4	1.4		1.4		.3		1.4	1.4	1.4				2403 (2102, 2402, 2403)
24	FA-18C	165227	GB70W6X	1A7	1.3	1.3		1.3		.2								2306, 2508, 3202 (2102, 2306, 2508, 3201, 3202)

Totals This Month	TPT	PPT	CPT	ACDR	SCT	ACT	SIM	NITE	TNVG	NVG	HLL	LLL	CMBT
	12.2	12.2		12.2		3.4		7.4	7.2	7.2			

Brought Forward	TPT	PPT	CPT	ACDR	SCT	ACT	SIM	NITE	TNVG	NVG	HLL	LLL	CMBT
1108.2	87.6	87.6		87.6		22.6	5.1	21.4	105.9	103.9	2		

Total to Date	TPT	PPT	CPT	ACDR	SCT	ACT	SIM	NITE	TNVG	NVG	HLL	LLL	CMBT
1120.4	99.8	99.8		99.8		26	5.1	28.8	113.1	111.1	2		

Signature

Date

ENCLOSURE (20)

Approaches

	1	2	3	4	A	B	C	NENS	PSE
5		1							
12	1								
17	1								
17	1								
18	2								
19	1								
24		1							
	6	2							

Landings

	6	F
5	1	
9		1
12	1	
17		1
17		1
18		2
19	1	
19		1
24	1	
	4	6

Signature Date

ENCLOSURE (20)

TMS	TMN/Z	NAL	TMP	TPT	FPT	CPT	ACDR	SCT	ACT	SIM	NITE	INVG	NVG	HLL	LLL	CMBT	OR
1	FA-18C	165218	GB70W7D	1A6 2J2	.9	.9		.9										2501, 2502 (2102, 2501, 2502)
2	FA-18C	165227	GB70W7K	1A6 2J2	1.3	1.3		1.3										2501, 2509 (2102, 2501, 2509)
6	FA-18C	165227	GB70W81	1A6 2J2	1.2	1.2		1.2										2508, 2509 (2102, 2508, 2509)
9	FA-18C	165222	GB70W89	1A6 2J2	1.3	1.3		1.3		1								3501, 3804 (2102, 3501)
10	FA-18C	165218	GB70W8F	1A6 2J2	2.7	2.7		2.7		2								2102, 3602, 3800 (2102, 2402, 3602, 3800)
11	FA-18C	165218	GB70W8G	1A7 2J2	2.7	2.7		2.7		.5								2101, 2102, 3702 (2101, 2102, 2304, 2306, 2402, 2507, 2509, 3702)
12	FA-18C	165218	GB70W8H	1A6 2J2	3.4	3.4		3.4		.2								2102, 2201, 2501, 2502, 2503, 2508 (2102, 2201, 2501, 2502, 2503, 2508)
16	FA-18D	164853	GF715W9	1A6	2	2		2										
23	FA-18C	165222	GB70WA3	1A7 2J2	1.4	1.4		1.4										3702 (2102, 2304, 2306, 2402, 2507, 2509, 3701, 3702)
30	FA-18C	165218	GB70WAD	1A6 2J2	1.4	1.4		1.4			.1							2508, 6735 (2102, 2508)

Month This Month	TPT	FPT	CPT	ACDR	SCT	ACT	SIM	NITE	INVG	NVG	HLL	LLL	CMBT
	18.3	18.3		18.3		2.8	.1						

Brought Forward	TPT	FPT	CPT	ACDR	SCT	ACT	SIM	NITE	INVG	NVG	HLL	LLL	CMBT
1120.4	99.8	99.8		99.8		26	5.1	28.8	113.1	111.1	2		

This To Date	TPT	FPT	CPT	ACDR	SCT	ACT	SIM	NITE	INVG	NVG	HLL	LLL	CMBT
1138.7	118.1	118.1		118.1		28.8	5.2	28.8	113.1	111.1	2		

Signature Date

ENCLOSURE (20)

Approaches

	1	2	3	4	A	B	C	NFNS	PSE
10		1							
11		1							
30					1				
		2			1				

Landings

	6
1	1
2	1
6	1
9	1
10	2
11	2
12	1
16	1
23	1
30	1
	12

ature Date

ENCLOSURE (20)

	TMS	BUNO	NAL	TMR	TPT	FPT	CPT	PIC	SCT	ACT	SIM	NITE	TNVG	NVG	HLL	LLL	CBT	T&R
1	FA-18D	165687	GFA0IHX	1A6 2J2	1	1		1		.1								
11	FA-18C	165218	GB70WB2	1A6 2J2	1.3	1.3		1.3										2508, 6735 (2102, 2508)
13	FA-18C	165222	GB70WBH	1A7 2J2	2.9	2.9		2.9										2201, 2304, 3103, 3104, 6735 (2102, 2201, 2304, 2402, 3101, 3103, 3104)
18	FA-18C	165161	GB70WBW	1A6 2J2	1.3	1.3		1.3		1.3		1.3	1.3	1.3				2403, 6735 (2102, 2402, 2403)
25	FA-18C	165218	GB70WDD	1A7 2J2	1.8	1.8		1.8		.3								3102, 3103, 3105, 6735 (2102, 2402, 3101, 3102, 3103, 3105)
26	FA-18C	165194	GB70WDH	1A7 2J2	1.7	1.7		1.7										3103, 6735 (2102, 3101, 3103)
27	FA-18C	165218	GB70WDN	1A7 2J2	2.3	2.3		2.3										3103, 3104, 6735 (2102, 3101, 3102, 3103, 3104)

Totals This Month	TPT	FPT	CPT	ACDR	SCT	ACT	SIM	NITE	TNVG	NVG	HLL	LLL	CMBT
	12.3	12.3		12.3		1.7		1.3	1.3	1.3			

Brought Forward	TPT	FPT	CPT	ACDR	SCT	ACT	SIM	NITE	TNVG	NVG	HLL	LLL	CMBT
1138.7	118.1	118.1		118.1		28.8	5.2	28.8	113.1	111.1	2		

Total To Date	TPT	FPT	CPT	ACDR	SCT	ACT	SIM	NITE	TNVG	FWNVG	HLL	LLL	CMBT
1151	130.4	130.4		130.4		30.5	5.2	30.1	114.4	112.4	2		

Signature

Date

ENCLOSURE (20)

Approaches

	1	2	3	4	A	B	C	NENS	PSE
18		1							
25		1							
		2							

Landings

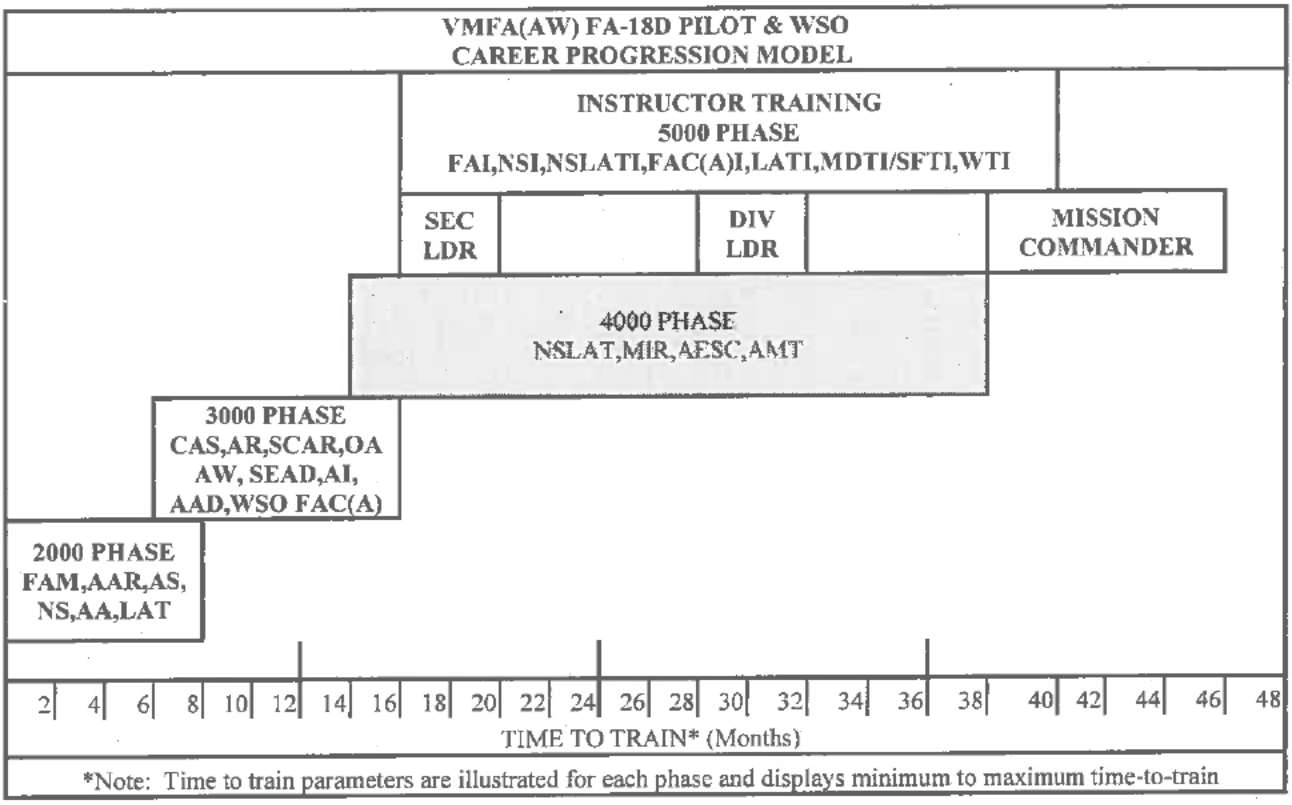
	6	F
1	1	
11	1	
13	1	
18		1
25	1	
26	1	
27	1	
	6	1

Signature

Date

ENCLOSURE (20)

2.1.2 FA-18D Pilot & WSO Career Progression Model



2.2 FA-18 PILOT/WSO PROGRAMS OF INSTRUCTION

2.2.1 Basic POI (CAT I/II). Represents the average time-to-train by Phase (1000-3000).

FA-18 BASIC POI (PILOT & WSO)		
WEEKS	COURSE	PERFORMING ACTIVITY
33	Core Introduction Training	FRS
24	Core Training	Tactical Squadron
23	Mission Training	Tactical Squadron

2.2.2 Refresher POI (CAT III). Represents the average time-to-train by Phase (1000-3000). *(731 days or greater since last FA-18 flight.)*

FA-18 REFRESHER POI (PILOT & WSO)		
WEEKS	COURSE	PERFORMING ACTIVITY
22	Core Introduction Training	FRS
23	Core Training	Tactical Squadron
23	Mission Training	Tactical Squadron

2.3 PROFICIENCY & CURRENCY

2.3.1 Proficiency. Proficiency is a measure of achievement of a specific skill. Proficiency periods establish the maximum time between demonstration of those particular skills. To regain proficiency, an individual shall complete delinquent Events with a proficient instructor, crewman/flight lead as delineated by the T/M/S Syllabus Sponsor (see Chapter 3 of the Program Manual on specific instructor requirements for Low Altitude Flight, Night Systems, ACM, DM, DACM, DCM, FAC(A)). If an entire unit loses proficiency, unit instructors shall regain proficiency by completing an event with an instructor from a like unit. If not feasible, the instructor shall regain proficiency by completing the event with another instructor. If a unit has only one instructor and cannot complete the event with an instructor from another unit, the instructor shall regain proficiency with another aircraft commander or as designated by the commanding officer.

ENCLOSURE (21)

Individual Proficiency is a "Yes/No" status assigned to an individual by Core, Mission, Mission Plus, or Core Plus Skill. When an individual attains and maintains CSP, MSP, MPSP, and CPSP in a skill, the individual counts towards CMMR or CMTS Unit Proficiency requirements.

Once Proficiency has been attained, the individual maintains Proficiency by executing those Events noted in the Maintain POI column of the T&R Syllabus Matrix. An individual maintains Proficiency by individual skills.

Note

Individuals may be attaining Proficiency in some skills while maintaining Proficiency in other skills.

Once proficiency has been attained, should one lose proficiency in an Event(s) in the "Maintain POI" column, proficiency can be re-attained by demonstrating proficiency in the delinquent Event(s). Should an individual lose proficiency in all Events in the "Maintain POI" column by Skill, the individual will be assigned to the Refresher POI for that Skill. To regain proficiency for that Skill the individual must demonstrate proficiency in all R-coded Events for that Skill.

2.3.2 Currency. A control measure used to provide an additional margin of safety based on exposure frequency to a particular skill. It is a measure of time since the last event demanding that specific skill. For example, currency determines minimum altitudes in rules of conduct based upon the most recent low altitude fly date. Specific currency requirements for aircrew individual type mission profiles can be found in Chapter 3 of the Program Manual.

2.4 REQUIREMENTS, CERTIFICATIONS, QUALIFICATIONS, AND DESIGNATION (RCQD) TABLES

2.4.1 Qualification. Qualification is a status assigned to aircrew based on demonstration of proficiency in a specific skill. The specific criteria to achieve a qualification are delineated in this T&R manual. Upon successful completion of qualification criteria, commanding officers may issue an appropriate qualification letter for inclusion in the NATOPS jacket and APR. Pilots do not lose a qualification as a function of refly factor for individual events. Loss of proficiency (delinquent refly factor) for all associated qualification events (events with measurable refly factor; '*' refly factor events excluded) constitutes loss of that qualification. Re-qualification requires demonstration of proficiency. Re-qualification shall be achieved by successfully re-completing all R-coded events associated with the respective qualification listed in the FA-18A-D training tables (unless waived per paragraph 216 of the Aviation T&R Program Manual).

2.4.2 Designation. Designation is a status assigned to an individual based on leadership ability. A designation is a command specific, one-time occurrence and remains in effect until removed for cause. Commanders shall issue a designation letter to the individual upon the occasion of original designation, with appropriate copies for inclusion in the NATOPS jacket and APR.

2.4.3 Qualifications And Designations Tables. The tables below delineate the T&R events required to be completed to attain initial qualifications, to re-qualify, and to attain designations. All stage lectures, briefs, squadron training, and prerequisites shall be complete prior to completing final events. Qualification and designation letters signed by the commanding officer shall be placed in the NATOPS and APR jackets.

2.4.4 VMFA FA-18A/C

VMFA FA-18A/C	
QUALIFICATION AND DESIGNATION REQUIREMENTS	
QUALIFICATION	REQUIREMENTS
NATOPS (6101)	IAW OPNAV 3710 (6101,6801,6802,6803)
INSTRUMENT (6102)	IAW OPNAV 3710 (6102,6804,6805)
DAY CQ QUAL (6201)	S4101,4102,4104,6201
NIGHT CQ QUAL (6202)	S4101,4103,4105,6202
LAT QUAL (6203)	S2601,2602,2603,6203
NSLAT QUAL (6204)	4701,4702,4703,6204
LSO QUAL (6205)	IAW LSO SCHOOL CURRICULUM,6205
PMCF QUAL (6206)	S6110,6206
FAC(A) QUAL (6207)	S4801,S4802,4803,4804,4805,4806,S4807,4808,S4809,S4810,4811,4812,6207
NS QUAL (6209)	S2401,2402,2403,2404,2505,6209
ACM QUAL (6210)	2501,2502,2503,2504,S2505,S2506,S2507,2508,2509,6210

ENCLOSURE (21)

Execute proper CAS comm IAW JPUB 3-09.3 and the TACSOP.
TOT +/- 15 secs.
Achieve effects on target or weapon impact within CEP.

Prerequisite. 3102

Ordnance. 1 GBU-32/38, 2 GBU-12/16, 250 20mm, 40 Chaff, 20 Flare

Range Requirements. RSTD, TGT, SST, EW, CAS, TGT-DISP, TGT-MOVE, JDAM, EXP

External Syllabus Support. JTAC or FAC(A)

CAS-3105 1.3 365 B,R,M (NS) A 2 FA-18 A/C/D

Goal. Conduct urban CAS.

Requirement. Evaluated by an FAI, WTI or FAC(A)I qualified pilot or WSO. Conduct three CAS attacks in an urban environment. Emphasize systems management, targeting pod employment, target PHID/correlation, ROE/CDE considerations, target area geometry, JTAC integration, and weapons employment. This sortie can be completed using an actual urban area with simulated ordnance if an urban target complex is not available.

Performance Standards
Comply with CAS TTPs IAW JPUB 3-09.3 and the TACSOP.
Comply with tactical abort parameters.
Adhere to WASP delivery parameters and TACSOP valid delivery criteria.
Execute appropriate threat countertactics.
Execute proper CAS comm IAW JPUB 3-09.3 and the TACSOP.
TOT +/- 15 secs.
Achieve effects on target or weapon impact within CEP.

Prerequisite. 3104

Ordnance. 1 GBU-32/38 inert, 2 GBU-12/16 inert, 250 20mm, 40 Chaff, 20 Flare

Range Requirements. RSTD, TGT, SST, EW, CAS, URBN WPNS, TGT-DISP, TGT-MOVE, EXP, JDAM

External Syllabus Support. JTAC or FAC(A)

CAS-3106 1.3 180 B,R,M NS A 2 FA-18A/C/D

Goal. Conduct night CAS using Type 1, 2 and 3 terminal attack control.

Requirement. Evaluated by an FAI, WTI or FAC(A)I qualified pilot or WSO. Conduct night CAS using all three types of control and both BOT and BOC methods of attack. Emphasize systems management; targeting pod employment, target correlation (as required), ROE/CDE considerations, bomb on target (BOT) and bomb on coordinate (BOC), PGM/IAM employment, reactive weaponeering, threat countertactics, and standardized CAS comm.

Performance Standards
Comply with CAS TTPs IAW JPUB 3-09.3 and the TACSOP.
Comply with tactical abort parameters.
Adhere to WASP delivery parameters and TACSOP valid delivery criteria.
Execute appropriate threat countertactics.
Execute proper CAS comm IAW JPUB 3-09.3 and the TACSOP.
TOT +/- 15 secs.
Achieve effects on target or weapon impact within CEP.

Prerequisite. 3104

Ordnance. 1 GBU-32/38, 1 GBU-12/16, 1 Mk-82/83, 250 20mm, 40 Chaff, 20 Flare

Range Requirements. RSTD, TGT, SST, EW, CAS, TGT-DISP, TGT-MOVE, JDAM, EXP

External Syllabus Support. JTAC or FAC(A)

SCAS-3102 1.0 120 B,R,M (NS) S 2 TOFT

Goal. Conduct PGM CAS using Type 2 and Type 3 terminal attack control. Practice BOC/BOT employment.

Requirement. Evaluated by an FAI, WTI or FAC(A)I qualified pilot or WSO. Conduct five attacks under Type 2 and 3 terminal attack control. With LGWs, one BOT and BOC attack is required for completion. With IAMs, two BOT and one BOC attacks are required for completion. Emphasize systems management, targeting pod employment, target correlation (if required), bomb on target (BOT) and bomb on coordinate (BOC), PGM/IAM employment, target area tactics, timing, reactive weaponeering, threat counter tactics, and CAS comm. Reemphasize laser marksmanship and target generation mechanization.

Performance Standards

Comply with CAS TTPs IAW JPUB 3-09.3 and the TACSOP.
Comply with tactical abort parameters.
Adhere to WASP delivery parameters and TACSOP valid delivery criteria.
Execute appropriate threat counter tactics.
Execute proper CAS comm per JPUB 3-09.3.
TOT +/- 15 secs.
Achieve effects on target or weapon impact within CEP.

Prerequisite. 3101, 2310

CAS-3103 1.3 365 B,R,M D A 2 FA-18A/C/D

Goal. Conduct day GP CAS using Type 1 or 2 terminal attack control.

Requirement. Evaluated by an FAI, WTI or FAC(A)I qualified pilot or WSO. Conduct three attacks under Type 1 or 2 terminal attack control. Emphasize systems management, timing, targeting pod employment, target correlation, target area tactics, reactive weaponeering, standardized CAS comm, and threat countertactics. TPOD required.

Performance Standards

Comply with CAS TTPs IAW JPUB 3-09.3 and the TACSOP.
Comply with tactical abort parameters.
Adhere to WASP delivery parameters and TACSOP valid delivery criteria.
Execute appropriate threat counter tactics.
Execute proper CAS comm IAW JPUB 3-09.3.
TOT +/- 15 secs.
Achieve effects on target or weapon impact within CEP.

Prerequisite. 3101

Ordnance. 4 Mk-82/83, 250 20mm, 40 Chaff, 20 Flare

Range Requirements. RSTD, TGT, SST, CAS, TGT-MOVE, TGT-DISP, EXP

External Syllabus Support. JTAC or FAC(A)

CAS-3104 1.3 180 B,R,M D A 2 FA-18A/C/D

Goal. Conduct day PGM CAS using Type 2 and 3 terminal attack control with PGMs.

Requirement. Evaluated by an FAI, WTI or FAC(A)I qualified pilot or WSO. WSO instructors will be paired with a designated section leader pilot or higher. Conduct two attacks under Type 2 terminal attack control and one attack under Type 3 terminal attack control. Emphasize systems management, targeting pod employment, target correlation (if required), bomb on target (BOT) and bomb on coordinate (BOC) contracts, PGM employment, reactive weaponeering, threat counter tactics, and standardized CAS comm.

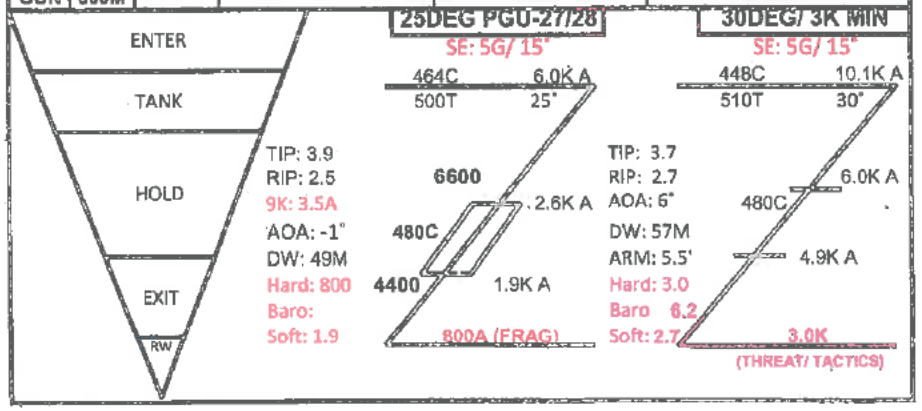
Performance Standards

Comply with CAS TTPs IAW JPUB 3-09.3 and the TACSOP.
Comply with tactical abort parameters.
Adhere to WASP delivery parameters and TACSOP valid delivery criteria.
Execute appropriate threat countertactics.

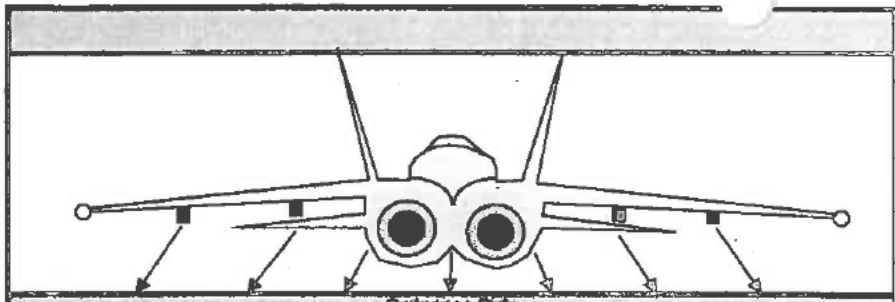
ENCLOSURE (23)

9 LINES

TIMING NM	TIMING 480 GS	Game Plan	Type: I II III BOT / BOC Weapon: Spacing:	Type: I II III BOT / BOC Weapon: Spacing:	Type: I II III BOT / BOC Weapon: Spacing:
1	0+08	1: IP			
2	0+15				
3	0+23	2: HDG			
4	0+30				
5	0+38	3: DIST			
6	0+45				
7	0+53	4: ELEV			
8	1+00				
9	1+08	5: DESC			
10	1+15				
11	1+23	6: LOC			
12	1+30				
13	1+38	7: MARK			
14	1+45				
15	1+53	8: FRND			
16	2+00				
17	2+07	9: EGRS			
18	2+15				
19	2+23	FAH			
20	2+30				
MSD WEP | DIS HVY-I | 500M LGTR | 500M MK82 | 1300M MK83 | 1500M MK84 | 1600M B2LG | 1000M B3LG | 1300M J82 | 1100M GUN | 500M		REMARKS			
		TOT			
		BDA			



ENCLOSURE (23)



Ordnance Data

STA	2	3	4	5	6	7	8	1 / 9
SMS	23						31	F0
							◊	82
DDI	83LG						82SB	
NOSE								
Type								
Code								
Arm								
Funct 1								
Funct 2								
TAIL								
Type	FMU-139						FMU-139	
Code	03						03	
Arm	X						X	
Funct 1	2.6/10						2.6/10	
Funct 2								
Plan Form								
CARR	635/ 1.3M						635/ 1.3M	
EMP	600/ 1.3M						600/ 1.3M	
G'S	-2 - 5.9						-2 - 5.9	
DIVE>								
WING								
Store	635/ 1.3M						635/ 1.3M	
G'S	1.0 LVL						SNGL ONLY	
Rack	N/A						SYM ONLY	
G'S							1.0 LVL	

Weaponeering Data

WPN	MK-82				GBU-16			
PROG	1	2	3	4	1	2	3	4
MODE	AUTO	AUTO	AUTO	AUTO	AUTO	AUTO		
QTY	1	2	1	2	1	1		
MULT		1		1				
INT		50		50				
MFUZ								
EFUZ	INST	INST	DLY	DLY	INST	DLY		
DRAG								
ARM	5.5	5.5	5.5	5.5	10	10		

Reactive Weaponeering

	Point	Area	Point	Area
Hard				
Med				
Soft				

Gun Data

Round	PGU-27
QTY	250
Burst	

LASER CODES

ASSYMETTRY

ALPHA LIMITS

ENCLOSURE (23)

VMFA-232 RED DEVILS

DATE	JULIAN	MSN #	AREA	RANGE TIME	DBRF
28-Jul-16	6210	2843	R-2501	2045-2215	ASAP

MISSION		
3103, 3104, 3106, 2202	CLNC:	A-27A: LAKEE. TRM TNP 2501 4 240 4 2983
	RTB:	A-27B: TNP TRM LOOTS
	ATIS:	

CALLSIGN	A/C	PILOT	TCN	CH	TN	ID/ VCS	LASER	VDL	ALT	ATC
DEVIL 43		STRANGER	38X	A	14200	D_L / DL43	1688	4400	MID	04
DEVIL 44		M	101X	B	14201	D / DL44	1775	4500	HI/LO	14

WALK	START	CHECK IN	T/O	TOS	LAND	IFF	MIDS		
1910	1950	2010	2025	2045-2115 / 2145-2215	1850 2230	M1: 23	NTR	JNL 15	
						M2: 23XX	TIME	Z	
NW/ TO	DIST	ABORT	JOKER	BINGO	TANKER J/B	M3: A/A	AIC	0	
160 / 165	3.2	D: NWLO / W: 150	6.5	4.5	7.5/5.5	M4: A	F/F	1	1
							VAB	23	23

COMM PLAN

PRI	SOP - 7 - 12 - 11- (13)BEARMAT - (9)ACME AIR - (14)R.. ER - 9-13 - 11(CNTR)
AUX	20 - (18)- 20

COMM LOAD

AGENCY	FREQ	CH	NET	C/S	COLOR
KNKX ATIS	352.0	1		ATIS	
KKX CLNC	254.325	2		CLNC	
KNKX GND	307.325	3		GND	
KNKX TWR	298.925	4		TWR	
SOCAL E	296.1	5		SOCAL	
SOCAL W	363.1	6		SOCAL	
DEP EAST	290.4	7		SOCAL	
R-2501	276.45	8	RANGE	BEARMAT	
DASC(P)	350.125	9	TATC(3)	ACME AIR	
DASC(S)	279.25	10	TATC(4)	ACME AIR	
LA CENTER	285.6	11		LA CNTR	EXIT S
LA CENTER	291.7	12		LA CNTR	
3BN 7MAR	250.725	13	TAD (1)		SILVER01
3BN 7MAR	255.075	14	TAD (3)		SILVER03
2BN 5MAR	354.375	15	TAD (2)		SILVER02
2BN 5MAR	233.025	16	TAD (4)		SILVER04
TAC 17	318.85	17	(7)7.025	DEVIL	
TAC 18	312.25	18	(8)8.025	DEVIL	
TAC 19	268.75	19	(9)9.025	DEVIL	
BASE	253.8	20		DEVIL BASE	
TANKER 1	233.35				
TANKER 2	238.05				
TANKER 3	303.55				
TANKER 4	320.225				
PALMS TWR	363.35				
PALMS APP	240.55				
	229.025				SILVER09

WAYPOINT LOAD

SEQ 1	SEQ 2	SEQ 3
AAC	R2501	

BE	REF	GEO REF			
35	35	23	24	25	4

1	CUTLASS	CALA	
2	SUPREME	N32 52.11	
3	LIMA	W117 07.46	
4	WHISKEY	ELEV: 463	
5	XRAY		
6	YANKEE		
7	ZULU		
8	BENTLEY		
9	ROLLS		
10	GREMLIN		
11	STINGRAY		
12	ALPHA		
13	FIAT		
14	AMBOY		
15	BUICK		
16	PORSCHE		
17	CAMARO		
18	CHARLIE		
19	CHEVY		
20	EL CAMINO		
21	FORD		
22	LAVIC		
23	LOTUS		
24	MAZDA		
25	DODGE		
26	MUSTANG		

27	NASH
28	OLDS
29	PLYMOUTH
30	PONTIAC
31	RANGER
32	SATURN
33	SHELBY
34	VETTE
35	Q
36	T
37	TRP3
38	TRP5
39	TRP6
40	TRP15
55	A12 SP
M2	RIV
M3	TRM
M4	BZA
M5	IPL
M6	JLI
M7	TNP
	SELF
	LOOT

ENCLOSURE (23)

9 LINES

TIMING NM	TIMING 480 GS	Game Plan	Type: I II III BOT / BOC Weapon: Spacing:	Type: I II III BOT / BOC Weapon: Spacing:	Type: I II III BOT / BOC Weapon: Spacing:
1	0+08	1: IP			
2	0+15				
3	0+23	2: HDG			
4	0+30				
5	0+38	3: DIST			
6	0+45				
7	0+53	4: ELEV			
8	1+00				
9	1+08	5: DESC			
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13	1+38	7: MARK			
14	1+45				
15	1+53	8: FRND			
16	2+00				
17	2+07	9: EGRS			
18	2+15				
19	2+23	FAH			
20	2+30				
MSD WEP | DIS HVY-I | 500M LGTR | 500M MK82 | 1300M MK83 | 1500M MK84 | 1600M 82LG | 1000M 83LG | 1300M J82 | 1100M GUN | 500M		REMARKS			
		TOT			
		BDA			

Check-In		Handover	
Mission Number/Type	2843 2x F/A-18	Threat Activity	AAR 26K .OMEGA
Position		Enemy Sit	ENTER 21K CUT/SPRM
Ordnance	1x GBU-16(I), 2x BDU-45, 250x 20MM	Friendly Sit	HOLD
Playtime	0+45	Artillery	
Capability	LPOD, VDL 4400/4500	Clearance Auth	EXIT VFR 16.5K
Abort	CLEAR	Hazards	
BLADE 14 VENOM 67 RAIDER 03		Remarks	MIN ALT

VMFA-232 RED DEVIL STANDARDS

The following Red Devil Standards shall be used to augment specific items not covered in or to reinforce the:

1. **Standard Operating Procedures (SOP) for USMC F/A-18 Flight Operations (2014)**
2. **WO 3710.39F (SOP for Air Operations, October 2013)**
3. **GruO P3710 6R MAG-11 (SOP for Flight Operations 08 February 2013)**
4. **StaO 3710.1B Airfield Ops Manual**
5. **MAG-11 How-to Execute Closed Field Ops**
6. **MAWTS-1 TACSOP (rev 14)**

Items to tighten up are highlighted in YELLOW. New items are highlighted in [redacted].

ADMIN

- **MAINTENANCE**
  - WHEN SIGNING FOR THE AIRCRAFT PILOTS WILL PRINT THEIR NAME NEXT TO THEIR SIGNATURE IN ORDER TO CLARIFY WHO FLEW THE AIRCRAFT PREVIOUSLY. THIS SHALL ALSO APPLY TO THE SIGNING OF PRO DECKS.
- **START UP**
  - PRIOR TO ENGINE START – ENSURE SDC TIME, DATE, AND ZULU OFFSET ARE CORRECTLY SET
  - ENSURE MAG VAR SET ACCORDINGLY FOR THE OPERATING AIRFIELD PRIOR TO SHUTDOWN. KNKX= E 11' 42"
- **HOT PIT / SEAT**
  - WHEN ENTERING THE PITS, PILOTS WILL SECURE THEIR STROBE LIGHT, AND PLACE EXTERNAL TANKS TO STOP UNTIL PRE-CHECKS COMPLETE SIGNAL IS GIVEN BY THE FUEL PIT MARINE.
  - GIVE A **"AIRCRAFT 04, SEVEN TO GO"** CALL ON BASE FREQ. HOT SEATING PILOTS WILL WALK NLT THAN SEVEN TO GO CALL.
  - PILOTS SHALL SEE SIGNALS FOR FUEL CAP SECURE / DOOR LOCKED PRIOR TO TAXIING OUT OF HOT PITS.
  - [redacted]
- **TAXI**
  - 500' STAGGERED DURING THE DAY, 1000' CENTERLINE AT NIGHT. UNFAMILIAR FIELD, OR NARROW TAXIWAY: 1000' CENTERLINE
- **TAKE OFF**
  - DIVISION 10" GO SHALL ONLY PLACE 3 ON THE RUNWAY, REGARDLESS OF RUNWAY WIDTH.
  - HERD GO IS THE STANDARD DIVISION TAKE-OFFS.
  - SECTION GO IS THE STANDARD FOR SECTION TAKE-OFFS.
- **ENROUTE**
  - **CLEAN AND DRY CHECKS**
    - FOLLOWING INITIAL RENDEZVOUS, FLIGHTS SHALL CONDUCT "CLEAN AND DRY CHECKS." THESE SHALL BE EXECUTED IN ACCORDANCE WITH THE USMC F/A-18 TACSOP GUIDANCE FOR BATTLE DAMAGE CHECKS.
  - **10K CHECKS**
    - PASSING 10K MSL FLIGHT LEADS WILL INITIATE THE 10K CHECKS OVER AUX:
      - [redacted]
  - **ENROUTE**
    - ONLY BINGO BUG SETTINGS, ALTIMETER SETTINGS, ALTITUDE BUG SETTINGS, ALTITUDE DECONFLICTION ASSIGNMENTS AND ITEMS DIFFERENT THAN BRIEFED NEED TO BE ACKNOWLEDGED BY WINGMEN UNLESS A POSITIVE ACKNOWLEDGEMENT IS REQUESTED BY THE FLIGHT LEAD.
- **10 OUT CALL**
  - JETS STATUS WILL BE COMMUNITCATED WITH THE FOLLWING BREVITY:
    - CODE "ALPHA"=FMC, "BRAVO"=PMC, "CHARLIE"=NMC
    - **"BASE, EVENT 2, 10 OUT, A/C 03 ALPHA, A/C 07 BRAVO"**
  - ODO WILL ACKNOWLEDGE AND INFORM PILOT SHUTDOWN ADMIN:
    - **"BASE COPIES, EXPECT LINE, SHUTDOWN"**

      OR
    - **"BASE COPY, EXPECT PITS, CALA"**
  - ATIS INFORMATION WILL THEN BE PASSED TO ALL WINGMEN.
- **LANDING**
  - RED DEVILS EXECUTE FAN BREAKS IN SECTION AND DIVISION.
  - COMM:
    - **"DEVIL 71 ABEAM, GEAR, STOP."**

- IF PREVIOUSLY CLEARED TO LAND AND CLEARANCE ACKNOWLEDGED,
  - **"DEVIL 71 GEAR(LEFT/RIGHT IF DUAL RUNWAYS),"** FOLLOWED BY ALL WINGMEN
  - **"DASH 2 GEAR(LEFT/RIGHT IF DUAL RUNWAYS)."** ETC...
- IF PERFORMING A SECTION LANDING, LEAD SHALL CALL FOR THE GEAR AS A FLIGHT
  - **"DEVIL 71 FLIGHT, GEAR, LEFT/RIGHT IF DUAL RUNWAYS)"**

- **POST LANDING**
  - ONCE CLEAR OF THE RUNWAY, PILOTS WILL TURN OFF TAXI LIGHT, FLAPS AUTO, SPEEDBRAKE IN, AND SET [redacted]. PILOTS SHALL HOLD CRYPTO BEFORE ERASE ALL.
  - ON DECK CALL TO BASE:
    - **"BASE, EVENT 2 ON DECK, A/C 03 ALPHA, A/C 07 BRAVO"**
    - TROUBLESHOOTERS MAY BE REQUESTED AT THIS TIME.
  - COCKPIT CLEAN-UP: ALL DEBARKING PILOTS SHALL ENSURE THE COCKPIT IS SET UP FOR THE NEXT PILOT IN ACCORDANCE WITH THE MAG-11 SOP.

TAC ADMIN

- **TRAINING RULES**
  - FOR FLIGHTS WITH BANDIT ELECTRONIC ATTACK:
    - AS A TECHNIQUE, FLIGHT LEADS MAY BRIEF RED AIR THAT THERE SHALL BE NO GROUPS LARGER THAN A 2 SHIP **INSIDE OF 10NM** TO ANY FIGHTERS. THIS WILL ALLOW FLIGHT LEADS TO EXIT FIGHTER BLOCKS WHEN BELIEVED SITUATIONAL AWARENESS IS CONFIRMED WITH A "TALLY TWO" CALL. IF TALLY A SINGLE ONLY, FIGHTERS SHALL REMAIN IN THEIR BLOCK FOR MERGE CLEANUP.
    - FLIGHT LEAD'S SHALL CONSIDER MISSION PLANNING FACTORS WHEN DETERMINING THE TRAINING VALUE OF EXITING BLOCKS FOR MERGE CLEANUP WITH ELECTRONIC ATTACK BEING EMPLOYED.
    - WHEN IN DOUBT, FLIGHT LEADS SHALL BRIEF THAT THERE SHALL BE NO TRANSITION OF BLOCKS INSIDE OF 10NM, REGARDLESS OF SITUATIONAL AWARENESS.
    - REFERENCE MAWTS-1 HORNET TACNOTES AUGUST 2012 FOR AMPLIFYING INFORMATION.
- **IFF / CIT / MIDS**
  - ALL FLIGHTS WILL BRIEF MODES AND CODES. THE FOLLOWING ARE STANDARD, DEVIATION IS APPROVED.
    - BLUE AIR / NON A-A MISSIONS
      - MODE 1 = IFF: 23 / AI: OFF
      - MODE 2 = IFF: 23XX (SIDE #) / AI: ON
      - MODE 3 = IFF: AS ASSIGNED / AI: OFF
      - MODE 4 = IFF: 4A or 4B / AI: 4A or 4B
      - FOR ALL NON-CIT AIRCRAFT: PILOTS SHALL VISUALLY CONFIRM THE CORRECT MODE 2 CODE IS PROGRAMMED IN THE IFF BOX INSIDE DOOR 13L.
    - RED AIR
      - MODE 1 = IFF: OFF ([redacted])
      - MODE 2 = IFF: OFF / AI: OFF
      - MODE 3 = IFF: AS ASSIGNED / AI: OFF
      - MODE 4 = IFF: OFF / AI: OFF
  - MIDS
    - TN, FF, AIC, VOICE A, VOICE B PER OPTASKLINK
    - BLUE AIR / NON A-A MISSIONS
      - [redacted]
      - VCS = [redacted] (FIRST, LAST LETTER OF CS, ASSIGNED POSITION IN FLIGHT)
      - [redacted]
    - RED AIR
      - YOU ARE A BLUE FIGHTER UNTIL YOU ARE FENCED IN, AT WHICH POINT YOU WILL SELECT THE RED NET AND CHECK MODES AND CODES ARE CORRECT FOR THE BRIEF
      - 1ST PRIORITY = UTILIZE ASSIGNED RED NETWORK
      - 2ND PRIORITY = SET MODE TO "SIL", ENSURE BLUE AIR NOT SET AS MEMBER/DONOR
      - UNBOX "PPLI" ON SA/SENSOR SUBLEVEL FOR PROPER SIMULATION\
      - WHEN YOU FENCE OUT, YOU ARE A BLUE FIGHTER AGAIN. RESELECT BLUE NET AND CHECK MODES AND CODES.
- **COMM CHECKS**
  - SHALL BE CONDUCTED IN ACCORDANCE WITH THE TACSOP
  - CHECK IN SHALL OCCUR ON BASE FREQUENCY 15 MINUTES PRIOR TO TAKEOFF (DEVIATIONS MAY BE MADE FOR LFE):
    - DEVIL 71: **"DEVIL, CHECK AUX"**
    - DEVIL 72: **"2" OR "2, FINAL CHECKS (OR TROUBLESHOOTING XXX)"**
  - WHEN READY TO EXECUTE THE MISSION, FLIGHT LEADS SHALL REPORT:
    - [redacted]
    - DEVIL 71: "BASE, EVENT 1 UP AS FRAGGED, STANDING BY WORDS"
    - BASE: "BASE, NEGATIVE WORDS, APPROVED TO LAUNCH" or "BASE, (AMPLIFYING INFORMATION), APPROVED TO LAUNCH"
    - DEVIL 71: "DEVIL PUSH TAC 17" or "DEVIL 71, FLIGHT PUSH TAC 17"
    - ALL FLIGHT MEMBERS WILL SWITCH TAC AUX AND STANDBY FOR CHECK IN:
      - DEVIL 71: "DEVIL CHECK"
      - DEVIL 72: "2"
      - DEVIL 73: "3"
      - DEVIL 74: "4"

ENCLOSURE (24)

- IF UNABLE ACTIVE, INITIAL CHECK IN SHOULD ALSO INCLUDE THE "NEED A MICKEY" COMMENT. THE FLIGHT LEAD WILL TRANSMIT THE MICKEY THREE TIMES. THE FLIGHT MEMBER WHO REQUESTED A MICKEY WILL REPLY WITH "CALLSIGN, GOOD MICKEY" AFTER THE MICKEY IS RECEIVED AND THE COLON NEXT TO TRCV IS REMOVED.
  - DEVIL 71: **"DEVIL, PUSH NET XX AUX"**
- AFTER SWITCHING TO THE APPROPRIATE NET, COMM CHECKS SHALL BE IN ACCORDANCE WITH THE TACSOP.
  - ONCE COMPLETE WITH ACTIVE SECURE CHECKS, AND WHILE STILL ACTIVE SECURE AUX:
    - DEVIL 71: ON AUX - **"DEVIL, PUSH TAC XX CLEAR PRI, BUTTON XX AUX"**
  - COMM CHECKS ON PRI PER THE TACSOP
  - WHEN COMPLETE WITH ACTIVE SECURE CHECK ON PRI, AND WHILE STILL ACTIVE SECURE:
    - DEVIL 71: **"DEVIL PUSH TAC XX CLEAR AUX , BUTTON XX PRI"**
- DCS CHECKS SHALL BE CONDUCTED ON COMM 2 IN ACCORDANCE WITH THE USMC F/A-18 TACSOP ON EVERY FLIGHT.
- ALL CHANGES TO PRI WILL BE DIRECTED BY LEAD STARTING WITH A SWITCH TO TOWER FREQUENCY. TACTICAL CALLSIGN WILL BE USED TO PREFACE EACH COMM SWITCH.
  - **"DEVIL, BUTTON 12 PRI." OR "DEVIL, 306.6 PRI."**

- **A/A TACAN**
  - DIVISION A/A TACAN ASSIGNMENTS WILL BE AS FOLLOWS (**AS TO NOT INTERFERE WITH MIDS**):

EVENT 1 LEAD:	37X	EVENT 2 LEAD:	38X	EVENT 3 LEAD:	39X	EVT 4:	40X
-2:	100X	-2:	101X	-2:	102X	-2:	103X
-3:	100Y	-3:	101Y	-3:	102Y	-3:	103Y
-4:	37Y	-4:	38Y	-4:	39Y	-4:	40Y

  - LEAD AND -3 CAN SWITCH X/Y FOR RANGING W/IN SECTION, -2/-4 NEVER SWITCH.
  - EVENT 5, 9, AND 13 WILL BEGIN WITH 37X EXAMPLE IN ORDER.
- **THE TYPICAL AIRBORNE TACADMIN FLOW WILL BE EXPENDABLES, G-WARM, FWD QTR RWR (IF REQ'D)**
  - DEVIATIONS MAY BE BRIEFED
- **EXPENDABLES CHECK**
  - THE ALE-47 WILL NOT BE TURNED ON UNTIL YOU ARE IN A MOA/RESTRICTED AREA WHERE CHAFF/FLARE IS AUTHORIZED EXCEPT FOR ON DECK SETUP / BIT.
  - COMM IN ACCORDANCE WITH THE MAWTS-1 TACSOP.
- **G-WARM**
  - IN ACCORDANCE WITH MAWTS-1 TACSOP FOR SECTION AND DIVISION.
- **FWD QTR RWR CHECK**
  - PERFORMED ON DAY FLIGHTS AT FLIGHT LEAD'S DISCRETION.
  - CONDUCTED FROM COMBAT SPREAD FOR A SECTION AND BATTLE-BOX FOR A DIVISION.
    - INITIATED POST G-WARM BY LEAD ON SAME REFERENCE HEADING UNLESS OTHERWISE BRIEFED.
    - **SECTION LEAD: "DEVIL TAKE A CUT AWAY."** FLIGHT MEMBERS WILL TAKE A 30 DEGREE CUT AWAY FROM THE REFERENCE HEADING AND MAINTAIN THAT CUT UNTIL THE TURN **IN** IS CALLED.
      - SECTION LEAD: "DEVIL TURN IN, LEFT TO LEFT (OR RIGHT TO RIGHT)"
        - CALL PASS IAW BFM TACADMIN
      - DASH 2: "LEFT TO LEFT"
      - IF IN DIVISION, DIV LEAD: "DEVIL TURN IN LEFT TO LEFT IN THE FRONT"
      - DASH 2: "LEFT TO LEFT IN THE FRONT"
      - DASH 3: "LEFT TO LEFT IN THE BACK"
      - DASH 4: "LEFT TO LEFT IN THE BACK"
        - CALL PASS IAW BFM TACADMIN
    - **DIV LEAD: "DEVIL RESUME"** - APPROACHING 3/9 LINE PASSAGE.
    - **IF NO LOCK ACHIEVED: "2, NO LOCK"**
- **FENCE IN**
  - THE FLIGHT LEAD WILL INITIATE A CHECK IN ON PRI (THE FLIGHT LEAD WILL SWITCH THE FLIGHT TO THE PRI FREQ UPON RECEIVING THAT FREQUENCY BUT WILL NOT CHECK THE FLIGHT IN UNTIL FENCED IN).
    - ON AUX: **"DEVIL CHECK IN PRI"**
    - ON PRI: "DEVIL CHECK"
      - "2, "3", "4"
  - CHECK IN WITH AIC / RTO SHALL BE IN ACCORDANCE WITH MAWTS-1 HORNET TAC NOTE JANUARY 2013.
- **OPS / G CHECK**
  - FLIGHT LEAD WILL INITIATE THIS CHECK OVER AUX:
    - "1, 7.3, 6000 G."
    - "2, 8.8, 6000 G."

- BFM TAC ADMIN
  - For high aspect beam sets, do not call the pass from the abeam position. Flight Leads will call the pass based on proximity at the turn-in. If in doubt, standard trailing rules apply - gain aspect to ensure a safe pass first.

- **FENCE OUT**
  - AFTER THE FINAL KIO LEAD WILL INITIATE WITH – **"DEVIL FENCE OUT."**
  - FOLLOWING THE FENCE OUT CALL WINGMAN WILL AUTO CLOSE INTO CRUISE FORMATION AND WAIT FOR THE COCKED GUN SIGNAL FROM LEAD TO INITIATE THE BATTLE DAMAGE CHECKS. BATTLE DAMAGE CHECKS WILL NOT COMMENCE UNTIL COMPLETELY FENCED OUT.
  - POST BATTLE DAMAGE CHECK LEAD WILL CALL:
    - "FENCED OUT, 3.4."

ENCLOSURE (24)

[redacted]
JET IS ASSUMED UP.

TACTICS

- **LPOD USAGE**:
  - LASER ARM SWITCH WILL BE TREATED THE SAME WAY AS THE MASTER ARM. ARM UP TO USE IT THEN DESELECT WHEN COMPLETE TO AVOID UNINTENTIONAL FIRING OF LASER/IR ENERGY. IF UTILIZING THE TRAIN FUNCTION OF THE LASER, IT SHALL BE BRIEFED IN DETAIL.
  - THE LASER FIRING LOG IS AT THE BOTTOM OF THE MAINTENANCE DEBRIEF SHEET, AND SHALL BE FILLED OUT POST FLIGHT IF THE LASER WAS FIRED.
- **AIR TO GROUND GUNNERY**
  - IF RADALT IS INOPERABLE, YOU SHALL NOT STRAFE AT NIGHT, REGARDLESS OF LIGHT LEVEL

MISCELLANEOUS

- TOPGUN VALIDATION CRITERIA WILL BE USED TO VALIDATE ALL A/A SHOTS AND MAWTS-1 FOR A/G DELIVERIES.
- EVALUATED PILOTS SHALL SUBMIT GRADESHEETS VIA EMAIL TO THEIR INSTRUCTOR NO LATER THAN 48 HOURS POST MISSION COMPLETION. THE EVALUATED PILOT SHALL FILL OUT HIS 'LESSONS LEARNED' BASED ON THE DEBRIEF IN THE FOLLOWING FORMAT: BRIEF, ADMIN, TACADMIN, T/R & SOF, MISSION. INSTRUCTORS SHALL COMPLETE THE REMAINDER OF THE GRADESHEET WITHIN 24 HOURS OF RECEIPT, AND SUBMIT A COPY VIA EMAIL TO THE PTO AND STUDENT. THE ATTACHED GRADESHEET WILL BE SAVE AS (T&R CODE_LAST NAME) i.e. 6301_SMITH
- THE COFFEE MESS OFFICER IS RESPONSIBLE FOR THE MAINTENANCE OF "THE KITTY" LOGBOOKS. ANY AND ALL KITTY FINES SHALL BE PAYED DURING MONTHLY DUES. FLIGHT LEADS ARE RESPONSIBLE FOR THE LOGGING OF FINES.
- UTILIZE PAGE B-10 OF THE MAWTS-1 BRIEFING GUIDE FOR ORDNANCE PREFLIGHT
- [redacted]DIVIDUALS ARE RESPONSIBLE FOR POSTING THEIR SHOT/DROP VALIDATION ON THE SHOT VAL WHITE BOARD IN [redacted]HE READY ROOM. CAPT CAMPBELL IS THE SHOT VAL SME.
- RAMS WILL BE CARRIED AND RECORDING CHECKED ON ALL FLIGHTS WHERE AIRCRAFT ARE LPOD EQUIPPED.
- ALL PILOTS WILL BRIEF TACSOP AIR-TO-AIR TIMELINES AND TACTICS (HSGP). PSFTIS WILL BRIEF TOPGUN AIR-TO-AIR TIMELINES AND TACTICS.